The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington Street, Boston, MA 02108-4619

CHARLES D. BAKER
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KARYN E. POLITO
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MARYLOU SUDDERS
Secretary

MONICA BHAREL, MD, MPH
Commissioner

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October 25, 2019

Steven T. James
House Clerk
State House Room 145
Boston, MA 02133

William F. Welch
Senate Clerk
State House Room 335
Boston, MA 02133

Dear Mr. Clerk,

Pursuant to Section 2 of Chapter 111 of the Massachusetts General Laws, the attached report summarizes mortality data and statistics for the 2017 calendar year.

Sincerely,

Monica Bharel, MD, MPH
Commissioner
Department of Public Health

Charles D. Baker
Governor

Karyn Polito
Lieutenant Governor

Marylou Sudders
Secretary

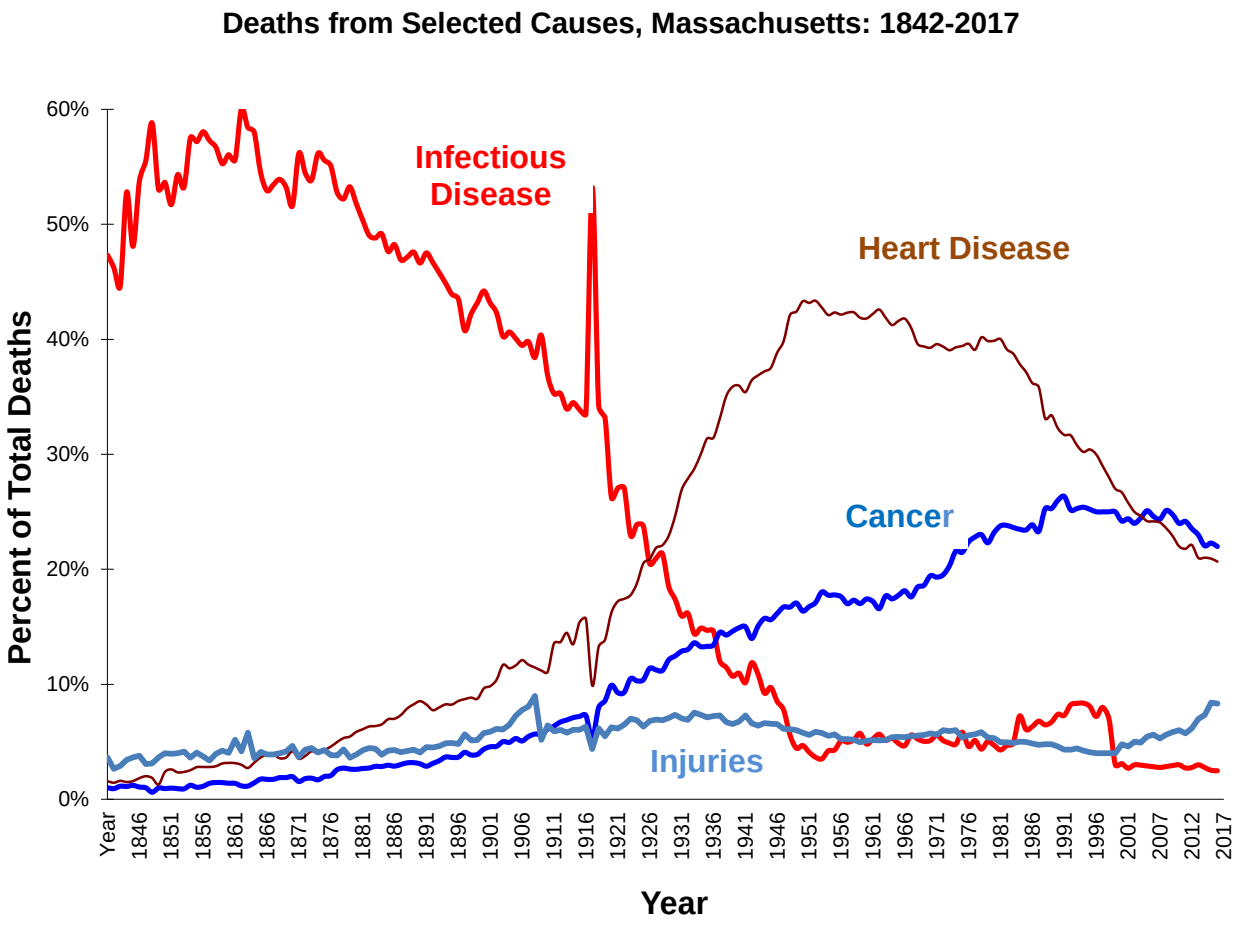
Monica Bharel, MD, MPH
Commissioner

Massachusetts Deaths 2017

October 2019

Massachusetts Department of Public Health

Massachusetts Deaths 2017



Office of Population Health

Massachusetts Department of Public Health

October 2019

Massachusetts Deaths 2017

Charles D. Baker, Governor
Marylou Sudders, Secretary of Health and Human Services
Monica Bharel, MD, MPH, Commissioner of Public Health

Abigail R. Averbach
Assistant Commissioner and Director
Office of Population Health

Karin Barrett
Registrar
Registry of Vital Records and Statistics

Massachusetts Department of Public Health

October 2019

Acknowledgments

This report was prepared by Kevin Foster, Office of Data Management and Outcomes Assessment.

Special thanks go to: Karin Barrett, Registrar, Registry of Vital Records and Statistics; Dean DiMartino, Deputy Registrar, Registry of Vital Records and Statistics; Sharon Pagnano, Maria Vu, and Marsha Grabau, Registry of Vital Records and Statistics; Dana Bernson and Malena Hood, Office of Special Analytic Projects; Natalie Nguyen Durham and Vanessa Neergheen, Office of Data Management and Outcomes Assessment.

Data in this report have been collected through the efforts of the Registry of Vital Records and Statistics staff, including: Michael Baker, Pamela Corbin, June Deloney, Alex Forman, Marsha Grabau, Annette Luc, Denise O'Gara, Margaret Riley, Jennifer Smith, and Monica Smith.

To obtain additional copies of this report, contact:

Massachusetts Department of Public Health
Registry of Vital Records and Statistics
150 Mt. Vernon Street 1st Floor
Dorchester, MA 02125
(617) 740-2670

To obtain more information on deaths in Massachusetts and other Department of Public Health data please visit the Department's free, Internet-based public health information reports at: https://www.mass.gov/orgs/population-health-information-tool-phit.

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2017 Massachusetts Deaths Highlights

- From 2016 to 2017, the age-adjusted mortality rate for Massachusetts residents changed from 668.9 deaths per 100,000 to 675.7 deaths per 100,000; but this change was not significant. The age-adjusted mortality rates for White non-Hispanic, Black non-Hispanic , Asian non-Hispanic, Hispanic, female, and male residents also did not change significantly (Table 1).
- The average life expectancy of Massachusetts residents was 80.6 years in 2017 (Figure 1). Since 2006, the Massachusetts life expectancy has remained close to 80 years, reaching 80.9 years at its highest in 2012/2013. Hispanic women had the highest life expectancy, living 89.1 years from birth, on average, while the life expectancies for White non-Hispanic women and Black non-Hispanic women were 82.9 and 83.6 years, respectively (Table 3).
- In 2017, the premature mortality rate (which only includes deaths that occur before age 75) remained higher for Black non-Hispanic residents (327.2 deaths per 100,000) than for White non-Hispanic (290.2), Hispanic (265.9), and Asian non-Hispanic (130.2) residents (Figure 6). However, the life expectancy of Black non-Hispanic residents who lived to age 75 was higher than that of White non-Hispanic residents (Table 3), which suggests that Black non-Hispanic residents live longer upon reaching old age.
- Every day in 2017, there were on average 161 deaths, which included 35 cancer deaths, 33 heart disease deaths, 16 respiratory condition deaths, and 13 injury deaths (Figure 7). Of the 13 injury deaths, 7 deaths were due to poisonings, which include opioid overdoses.
- Cancer was the leading cause of death for Massachusetts residents in 2017 (Table 6). The rate of cancer deaths was highest for White non-Hispanic residents (153.2 per 100,000) and lowest for Hispanic residents (98.0 per 100,000) (Table 9). Lung cancer remained the leading cancerous cause of death (Table 11).
- In 2017, Black non-Hispanic and Hispanic residents died from cancer at younger ages when compared to White non-Hispanic and Asian non-Hispanic residents (Figure 11). Black non-Hispanic, Hispanic, and Asian non-Hispanic residents died from heart disease at younger ages when compared to White non-Hispanic residents (Figure 9).
- In 2017, the rate of heart disease deaths remained higher for White non-Hispanic men and women than for any other racial/ethnic group (Table 10).
- The percentage of deaths due to injuries declined slightly between 2016 and 2017 (Figure 4). Deaths due to injury had been steadily increasing since 2012. Injury deaths include opioid overdoses.
- Poisonings, which include opioid overdoses, continued to be the largest cause of injury deaths in 2017, however the injury death rate due to poisoning was 35.4 per 100,000 in 2016 and 33.8 per 100,000 in 2017 (Table 18). For all leading causes of injury death, rates were higher for men than for women, with the greatest disparity in poisoning deaths (48.8 per 100,000 for men and 15.5 per 100,000 for women).
- The rate of suicide deaths for White non-Hispanic residents (11.0 per 100,000) was almost double the corresponding rates for other groups (3.8 per 100,000 for Black non-Hispanics, 5.5 per 100,000 for Asian non-Hispanics, and 6.8 per 100,000 for Hispanics) (Table 23).
- For the first time this year, we divided the oldest age group for HIV deaths into subgroups. This showed a continuous shift towards the 65+ age group, representing 35.4% of the deaths as compared to 22.7% in 2016 (Table 26).
- In 2017, the rate of infant mortality for Black non-Hispanic residents (6.6 per 1,000 live births) was almost two and a half times higher than the corresponding rate for White non-Hispanic residents (2.6 per 1,000 live births) (Table 30).
- The leading cause of infant deaths in 2017 was disorders relating to short gestation and low birthweight, representing 16.7% of all infant deaths (Table 31).

Note to Readers

Please review the information below before reading the report. As required by Chapter 111, Section 2 of the General Laws, this report satisfies the requirement of the annual report on statistics on deaths for calendar year 2017 (Annual Report Vital Statistics of Massachusetts-Deaths, Public Document #1 2017). Public Document #1 information on 2017 births, marriages, and divorces is covered in separate reports.

1. **Please Note:** Collection of vital records is a complex process. The National Center for Health Statistics (NCHS) deems an annual file closed when it has reached a certain level of completeness. In the past, the Massachusetts Department of Public Health has followed their definition to match the national numbers. Starting with the 2013 report, the department is closing our annual file later than the file sent to the NCHS to get more complete reporting of events[1]. While cause of death information will be more complete due to this change, it may also cause the appearance of an increase in the number of deaths when compared to previous years. Thus, comparisons between years should be interpreted with caution. This caution should be applied especially for causes of death that are often referred to the Office of the Chief Medical Examiner for determination of underlying causes of death. See Figure 5 for details. Accidental deaths, poisonings, and complex cases are most likely to be impacted by closure dates that differ from year to year.

2. VIP System

- The Vitals Information Partnership (VIP) is an electronic registration system designed to streamline and integrate vital event registration, securely, across the Commonwealth. The VIP death application was launched in September 2014, and a revised version of the death certificate was also introduced at that time. Therefore 2015 was the first full year of data using improved data collection methods and new data items. Changes in data fields promote accuracy and now align with national standards.
    - Changes in data fields impact figures and tables that report trends over time. The reader must use caution when comparing 2017 results to findings from years prior to 2015.
        - For example, families of decedents now report race separately from ethnicity and may choose more than one race from the standard checkbox lists. Previously, families wrote free-form responses in a single field that were often difficult to categorize and may have resulted in some misclassifications. (See Note to Readers.)
        - While the new method improves accuracy, an algorithm must still be used to analyze multiple race responses and choose the most appropriate standard race category as used in this report. (See Technical Notes.)

3. 2003 Revisions of the U.S. Standard Certificate of Death

This report includes 2016 data on items that are collected on both the 1989 revision of the Standard Certificate of Death (unrevised) and the 2003 revision of the Standard Certificate of Death (revised). In addition to the collection of new variables, the 2003 revision allows the reporting of more than one race in accordance with the revised standards issued by the Office of Management and Budget (OMB) in 1997. See "Technical Notes" for detailed

[1] This report uses death record data prepared on 10/3/2017. In a very small number of cases, additional data will be obtained at a later date. Therefore, the statistics presented in this report could change slightly based on any information received after 10/3/2017.

information on the 2016 multiple-race reporting area and methods used to bridge responses for those who report more than one race to a single race.

4. **Cabo Verdean Race Categorization**
   Prior to launching the VIP death application in September 2014, "Cape Verdean"[2] was an option that could be selected for a decedent's race. Decedents of Cabo Verdean race were then reclassified as Non-Hispanic Black for Death Report analyses for consistency with NCHS standards. However, in the VIP death application "Cape Verdean"[2] is considered an ethnicity, and is collected separately from race. For this reason, decedents of Cabo Verdean ethnicity are now classified according to their reported race and may be distributed to any one of the five MDPH race/ethnicity categories (Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian and Pacific Islander, Non-Hispanic American Indian and Alaska Native, or Hispanic). This change in categorization may result in fewer Non-Hispanic Black deaths, and may particularly impact rates stratified by race/ethnicity that are based on smaller counts.

   - **Population Source.** State, County, and Small Area Population Estimates 2011-2020, version 2017, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

5. **Resident deaths.** All data in this publication are resident data unless otherwise stated. Resident data include all events that occur to residents of the Commonwealth, wherever they occur.

Suggested Citation
Massachusetts Deaths 2017. Boston, MA: Office of Population Health, Registry of Vital Records and Statistics, Massachusetts Department of Public Health. October 2019.

[2] The U.S. Board on Geographic Names approved the change of the country name from "Cape Verde" to "Cabo Verde" on December 9, 2013. However, in earlier years and in 2016 the death worksheet still used the name "Cape Verdean".

Table 1. Trends in Mortality Characteristics, Massachusetts: 2007-2017

Year		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Resident deaths	Number	52,690	53,341	51,915	52,420	53,536	53,169	54,609	55,159	57,785	56,953	58,844
	Crude rate[1,2,3]	816.9	820.9	787.4	800.6	812.7	807.1	815.9	817.7	850.5	836.1	849.7
	Age-adjusted rate[4]	704.4	703.5	675.1	672.7	674.0	669.2	664.1	662.5	684.6	668.9	675.7
Race/ethnicity of decedent [5,6]												
White non-Hispanic	Number	48,518	49,059	47,520	48,010	48,844	48,430	49,486	49,621	51,688	50,654	52,038
	Percent[7]	92.1	92.0	91.5	91.6	91.2	91.1	90.6	90.0	89.4	88.9	88.4
	Age-adjusted rate[4]	711.1	710.7	682.8	684.4	686.9	681.0	680.9	679.5	703.3	687.9	697.1
Black non-Hispanic	Number	2,211	2,222	2,288	2,278	2,333	2,318	2,446	2,390	2,349	2,504	2,636
	Percent[7]	4.2	4.2	4.4	4.3	4.4	4.4	4.5	4.3	4.1	4.4	4.5
	Age-adjusted rate[4]	820.5	805.8	812.2	702.6	707.6	701.8	675.5	630.4	589.5	612.4	641.6
Asian non-Hispanic	Number	610	692	697	759	806	811	816	938	1,091	1,028	1,165
	Percent[7]	1.2	1.3	1.3	1.4	1.5	1.5	1.5	1.7	1.9	1.8	2.0
	Age-adjusted rate[4]	342.0	372.5	353.1	364.8	375.2	372.4	320.5	344.7	371.8	324.7	361.1
Hispanic	Number	1,264	1,275	1,337	1,308	1,477	1,487	1,548	1,702	2,037	2,126	2,372
	Percent[7]	2.4	2.4	2.6	2.5	2.8	2.8	2.8	3.1	3.5	3.7	4.0
	Age-adjusted rate[4]	477.7	458.2	439.8	443.9	468.9	484.9	444.9	447.9	493.0	473.2	505.7
Gender of decedent[6]												
Female	Number	27,851	28,246	27,356	27,368	27,983	27,883	28,558	28,289	29,880	28,952	29,665
	Age-adjusted rate[4]	596.3	595.9	572.8	567.2	572.8	571.1	569.5	557.9	581.2	560.2	563.2
Male	Number	24,838	25,095	24,557	25,051	25,553	25,280	26,051	26,867	27,905	28,000	29,178
	Age-adjusted rate[4]	853.3	852.2	822.1	811.9	808.5	797.9	786.5	795.9	814.7	804.9	817.9
Age of decedent												
<1 year	Number	380	381	366	319	310	309	298	321	310	283	263
1-14 years	Number	128	119	118	113	114	99	118	129	119	115	122
15-24 years	Number	505	421	440	453	471	419	449	441	519	526	501
25-44 years	Number	2,023	1,906	1,974	1,823	1,870	1,880	1,993	2,234	2,475	2,742	2,788
45-64 years	Number	8,560	8,426	8,688	8,753	8,808	8,791	9,013	9,214	9,348	9,270	9,516
65-74 years	Number	7,494	7,425	7,380	7,423	7,616	7,891	8,259	8,678	9,038	9,332	9,719
75-84 years	Number	14,781	14,970	13,943	13,639	13,598	13,272	13,182	12,784	13,299	12,870	13,272
85+ years	Number	18,816	19,692	19,004	19,888	20,747	20,506	21,296	21,356	22,677	21,813	22,663

1. Deaths per 100,000 residents. 2. See Glossary for further definition of terms and rates. 3. Rate calculations are based on resident population estimates. 4. Rates are age-adjusted per 100,000 residents using the 2000 US standard population. 5. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes in the Appendix for a more detailed explanation. 6. Column sum may not equal total because the race, gender or age of some decedents was unknown. 7. Percent of all resident deaths in that year.

Table 2. Selected Leading Causes of Death, Age-Adjusted Rates, Massachusetts and United States: 2002-2017

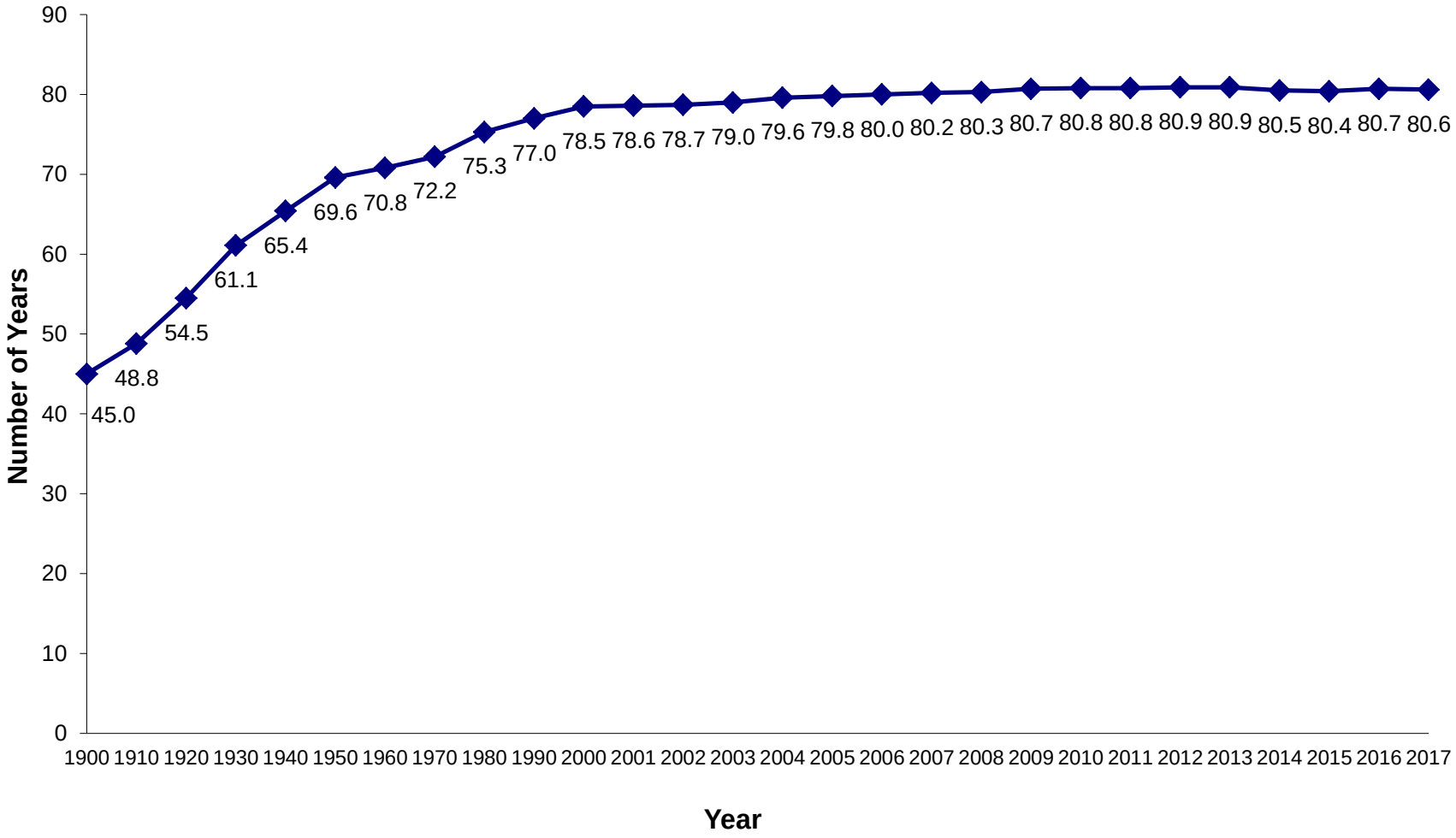
Year	Age-Adjusted Rates[1,2]	Heart Disease		Cancer		Stroke	
		MA	US[3]	MA	US[3]	MA	US[3]
2002	Rate	201.1	240.4	200.1	194.0	48.1	56.3
	% of Total	26.0	28.4	24.0	22.8	6.0	6.7
2003	Rate	196.6	232.3	193.0	190.1	45.0	53.5
	% of Total	26.0	28.0	24.1	22.7	6.0	6.5
2004	Rate	182.8	217.0	188.4	185.8	42.5	50.0
	% of Total	25.3	27.2	24.5	23.1	6.0	6.3
2005	Rate	172.2	211.0	184.9	183.8	38.1	46.6
	% of Total	24.6	26.6	24.5	22.8	5.5	5.9
2006	Rate	168.8	199.4	186.3	180.8	36.7	43.6
	% of Total	24.2	25.9	25.1	23.1	5.4	5.7
2007	Rate	165.7	190.9	179.2	178.4	35.0	42.2
	% of Total	24.2	25.9	24.6	23.1	5.1	5.7
2008	Rate	165.5	186.5	177.8	175.3	33.7	40.7
	% of Total	24.1	25.4	24.4	23.2	4.9	5.6
2009	Rate	155.2	179.8	174.0	173.6	32.2	38.9
	% of Total	23.6	24.6	25.1	23.3	4.9	5.3
2010	Rate	149.4	178.5	171.0	172.5	31.2	39.0
	% of Total	22.9	24.1	24.7	23.3	4.8	5.2
2011	Rate	144.4	173.7	166.1	173.7	30.2	37.9
	% of Total	22.1	23.7	24.0	23.7	4.6	5.1
2012	Rate	141.3	170.5	166.7	166.5	28.7	36.9
	% of Total	21.8	23.6	24.2	22.9	4.4	5.1
2013	Rate	142.2	169.8	159.5	163.2	27.7	36.2
	% of Total	22.1	23.5	23.5	22.5	4.3	5.0
2014	Rate	137.5	167.0	155.6	161.2	28.7	36.5
	% of Total	21.5	23.4	23.2	22.5	4.5	5.1
2015	Rate	138.7	167.0	152.8	161.2	28.4	36.5
	% of Total	21.0	23.4	22.1	22.5	4.3	5.1
2016	Rate	134.8	165.5	149.8	155.8	27.9	37.3
	% of Total	20.9	23.1	22.3	21.8	4.3	5.2
2017	Rate	134.5	165.0	149.1	165.0	26.5	37.6
	% of Total	20.7	23.0	22.0	21.3	4.0	5.2

Table 2 (continued). Selected Leading Causes of Death, Age-Adjusted Rates, Massachusetts and United States: 2002-2017

Year	Age-Adjusted Rates[1,2]	Influenza/Pneumonia		Unintentional Injuries		All Causes	
		MA	US[3]	MA	US[3]	MA	US[3]
2002	Rate	27.3	22.7	20.5	35.3	793.8	846.8
	% of Total	4.0	2.7	2.0	4.2		
2003	Rate	26.0	22.0	20.1	37.3	772.6	832.7
	% of Total	3.6	2.7	2.5	4.3		
2004	Rate	24.9	19.8	19.4	37.7	739.3	800.8
	% of Total	3.6	2.5	2.5	4.7		
2005	Rate	24.2	20.3	27.4	39.1	720.6	798.8
	% of Total	3.6	2.6	3.5	4.8		
2006	Rate	22.0	17.7	31.4	38.5	717.6	776.4
	% of Total	3.3	2.3	4.1	4.8		
2007	Rate	19.4	16.2	30.5	40.0	704.4	760.2
	% of Total	2.9	2.3	4.0	4.9		
2008	Rate	20.0	16.9	28.6	38.8	703.5	758.3
	% of Total	3.0	2.2	3.8	5.1		
2009	Rate	16.8	16.2	28.5	37.0	675.1	741.0
	% of Total	2.6	2.2	3.9	4.8		
2010	Rate	15.9	15.1	28.3	37.1	672.7	746.2
	% of Total	2.5	2.0	3.9	4.8		
2011	Rate	16.9	15.7	30.0	39.4	674.0	740.6
	% of Total	2.6	2.0	4.1	4.9		
2012	Rate	16.3	14.4	30.0	39.1	669.2	732.8
	% of Total	2.6	2.0	4.1	5.0		
2013	Rate	18.0	15.9	34.0	39.4	664.1	731.9
	% of Total	2.8	2.2	4.6	5.0		
2014	Rate	15.7	15.1	39.4	40.5	662.5	724.6
	% of Total	2.5	2.1	5.2	5.2		
2015	Rate	17.1	15.1	45.5	40.5	684.6	724.6
	% of Total	2.6	2.1	5.8	5.2		
2016	Rate	14.1	13.5	53.6	47.4	668.9	728.8
	% of Total	2.2	1.9	6.8	5.9		
2017	Rate	15.8	14.3	52.6	49.4	675.7	731.9
	% of Total	2.4	2.0	6.7	6.0		

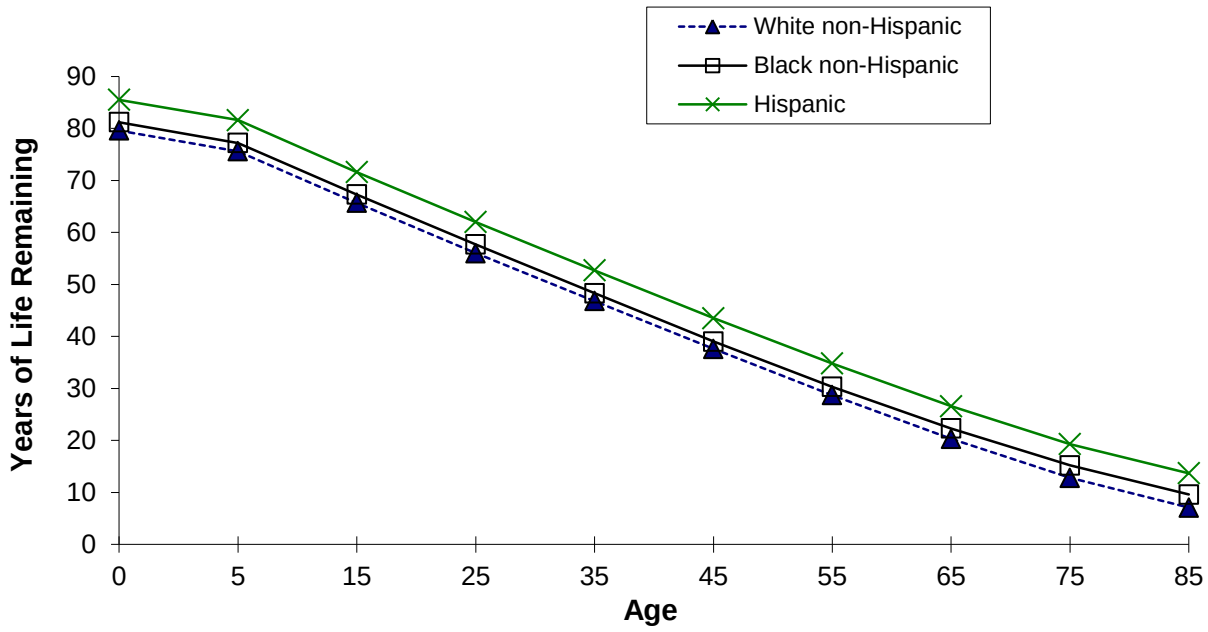
Note: Cause of death: the disease or injury that initiated the events leading to death or the circumstances of the unintentional or intentional injury that resulted in the death.
1. Data coded according to ICD-10. ICD-10 codes used in this publication are listed in the Appendix. 2. Rates are age-adjusted per 100,000 residents using the 2000 US standard population. 3. US data for 2017 obtained from NVSS: Deaths: Final Data for 2017. NVSS, Volume 68, Number 9. June 24, 2019.

Figure 1. Life Expectancy at Birth, Massachusetts: 1900-2017



Note: Life Expectancy at birth calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949).

Figure 2. Expected Years of Life Remaining[1] at Different Ages by Race and Hispanic Ethnicity[2], Massachusetts: 2017



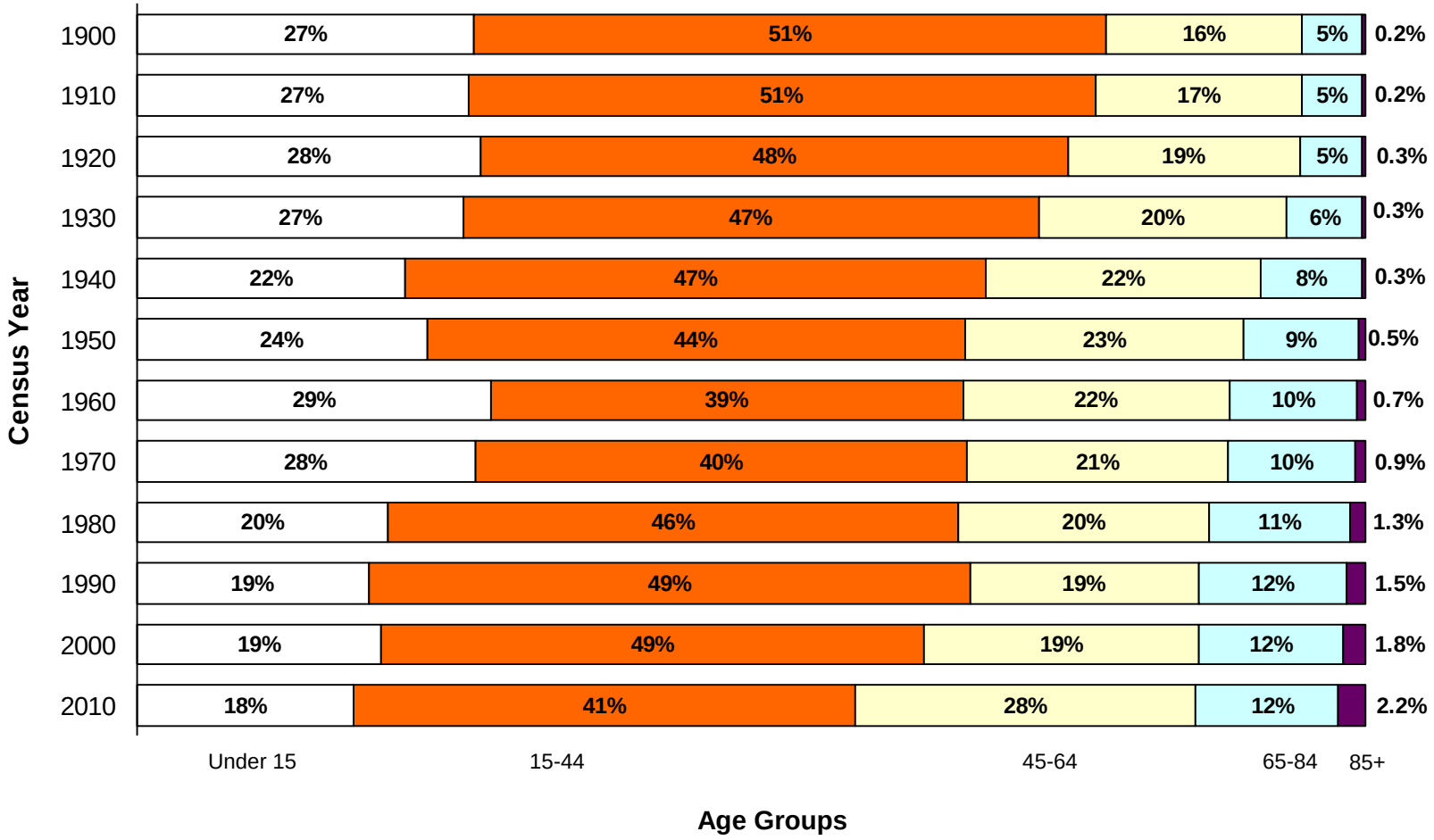
1. Years of Life Remaining calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949). 2. Population estimates are from 2017 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. There are well-known difficulties in calculating accurate mortality rates for Massachusetts smaller populations such as Asians, Native Americans and Hispanics- please use caution when interpreting these numbers.

Table 3. Years of Life Remaining[1] by Race and Hispanic Ethnicity[2] and Gender, Massachusetts: 2017

At Age:	All	All Females	White non-Hispanic Females	Black non-Hispanic Females	Hispanic Females	All Males	White non-Hispanic Males	Black non-Hispanic Males	Hispanic Males
Birth	80.6	83.1	82.9	83.6	89.1	77.9	77.6	77.7	81.7
1 year old	79.9	82.4	82.1	83.1	88.5	77.2	76.8	77.5	81.1
5 years old	76.0	78.4	78.0	79.2	84.5	73.2	72.8	73.6	77.1
15 years old	66.0	68.5	68.1	69.2	74.6	63.4	62.9	63.7	67.2
25 years old	56.3	58.7	58.3	59.4	64.8	53.8	53.4	54.2	57.7
35 years old	47.0	49.1	48.7	50.0	55.2	44.7	44.4	45.2	48.6
45 years old	37.8	39.6	39.3	40.5	45.8	35.7	35.4	36.2	39.8
55 years old	28.8	30.4	30.1	31.5	36.6	27.0	26.8	27.7	31.4
65 years old	20.5	21.7	21.4	23.0	28.0	19.0	18.7	20.0	23.7
75 years old	12.9	13.8	13.5	15.7	20.7	11.7	11.5	13.6	16.8
85 years old	7.1	7.6	7.4	9.1	16.1	6.3	6.1	9.5	12.5

1. Years of Life Remaining calculated using the Greville Abridged Life Table Method (source: Dublin LI. Length of Life - A Study of the Life Table. Ronald Press Co. New York. 1949). 2. Population estimates are from 2017 bridged population file, MARS (Modified Age, Race/Ethnicity, and Sex) file. There are well-known difficulties in calculating accurate mortality rates for Massachusetts smaller populations such as Asians, Native Americans and Hispanics- please use caution when interpreting these numbers.

Figure 3. Changes in Age Composition of the Population, Massachusetts: 1900-2010



Source: US Census Bureau 1900-1999. Resident death data for 2000 are calculated using the Massachusetts (Department of Public Health) Modified Age, Race/Ethnicity, & Sex Estimates 2000 (MMARS00), released October 2006. Population estimates for 2010 are from the NCHS Modified Age, Race/Ethnicity, & Sex Estimates 2009, released July 2010.

Figure 4. Trends in Percentage of Deaths from Selected Causes, Massachusetts: 1842-2017

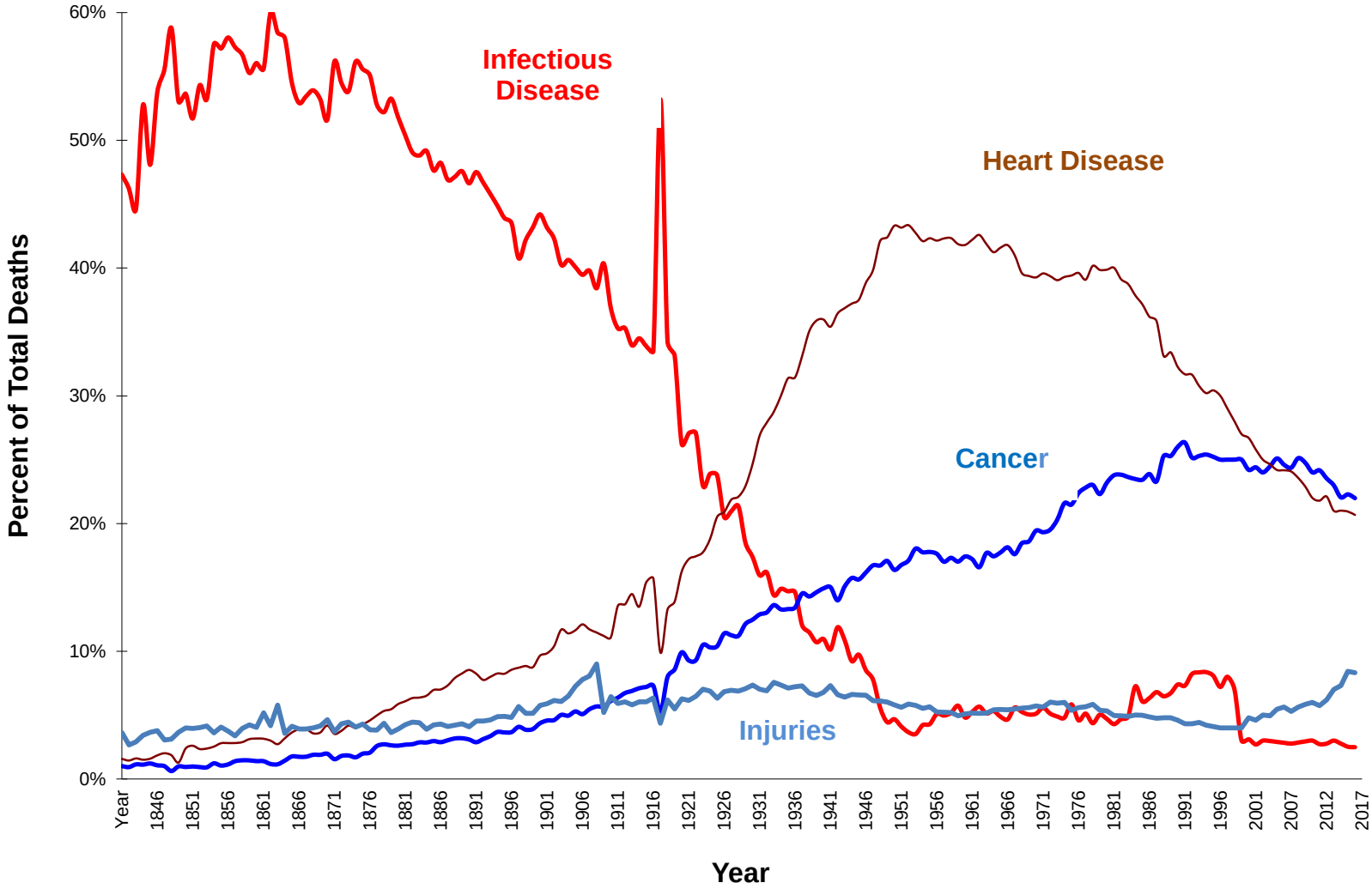
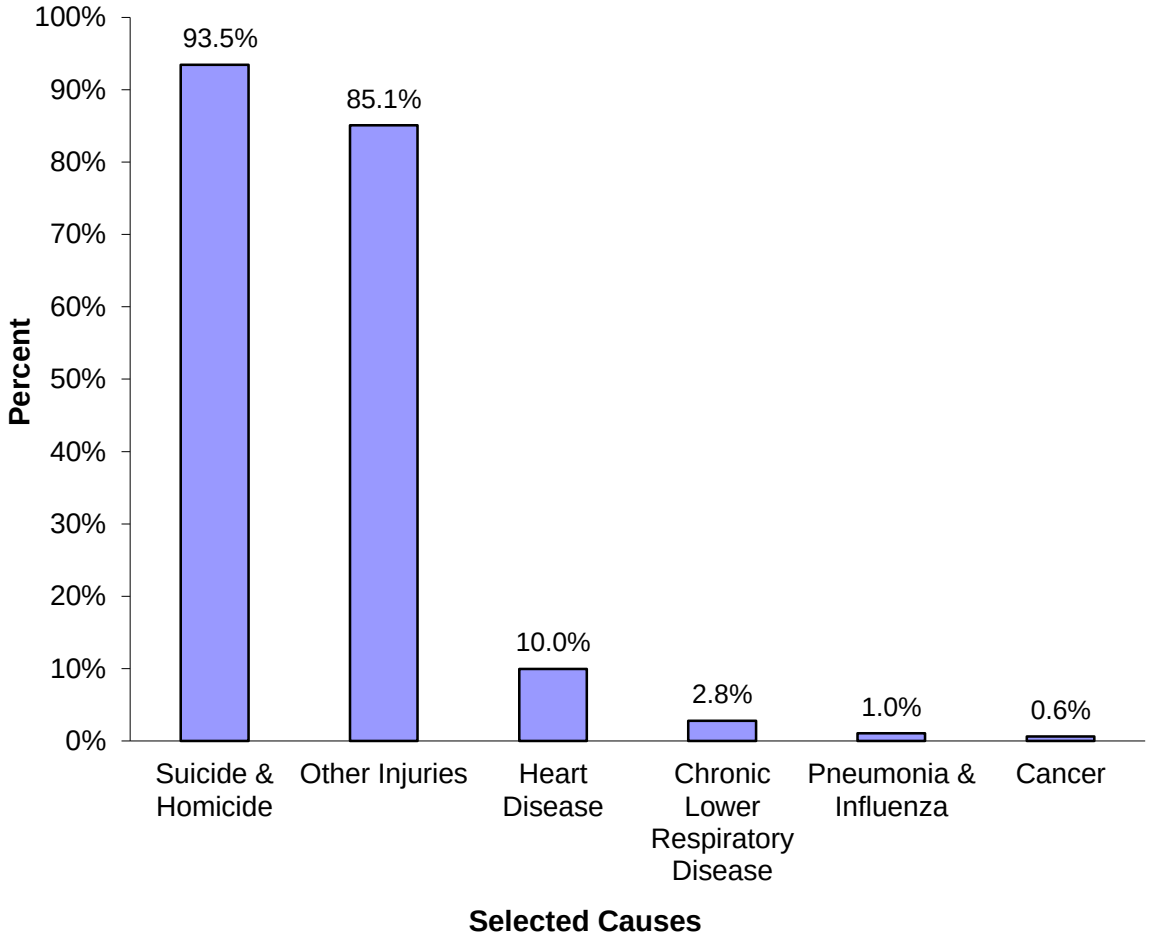


Table 4. Distribution of Deaths by Place of Occurrence, Massachusetts: 2013-2017

Type of Place where Death Occurred	2013		2014		2015		2016		2017	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Hospital (inpatient/outpatient)	20,277	37%	20,534	37%	21,397	37%	20,579	36%	21,343	36%
Dead on Arrival	617	1%	641	1%	602	1%	732	1%	644	1%
Nursing Home	15,652	29%	15,353	28%	16,099	28%	14,800	26%	15,003	26%
Hospice	--[1]	--[1]	--[1]	--[1]	2,628	5%	3,137	6%	3,321	6%
Assisted Living Facility or Rest Home	--[1]	--[1]	--[1]	--[1]	1,251	2%	1,332	2%	1,646	3%
At Home	15,117	28%	15,096	27%	14,419	25%	14,925	26%	15,361	26%
Other	2,842	5%	3,499	6%	1,382	2%	1,446	3%	1,520	3%
Unknown	104	0.19%	36	0.07 %	7	0.01%	2	0%	6	0%

1. Prior to 2015, these deaths were included in the “Other” category.

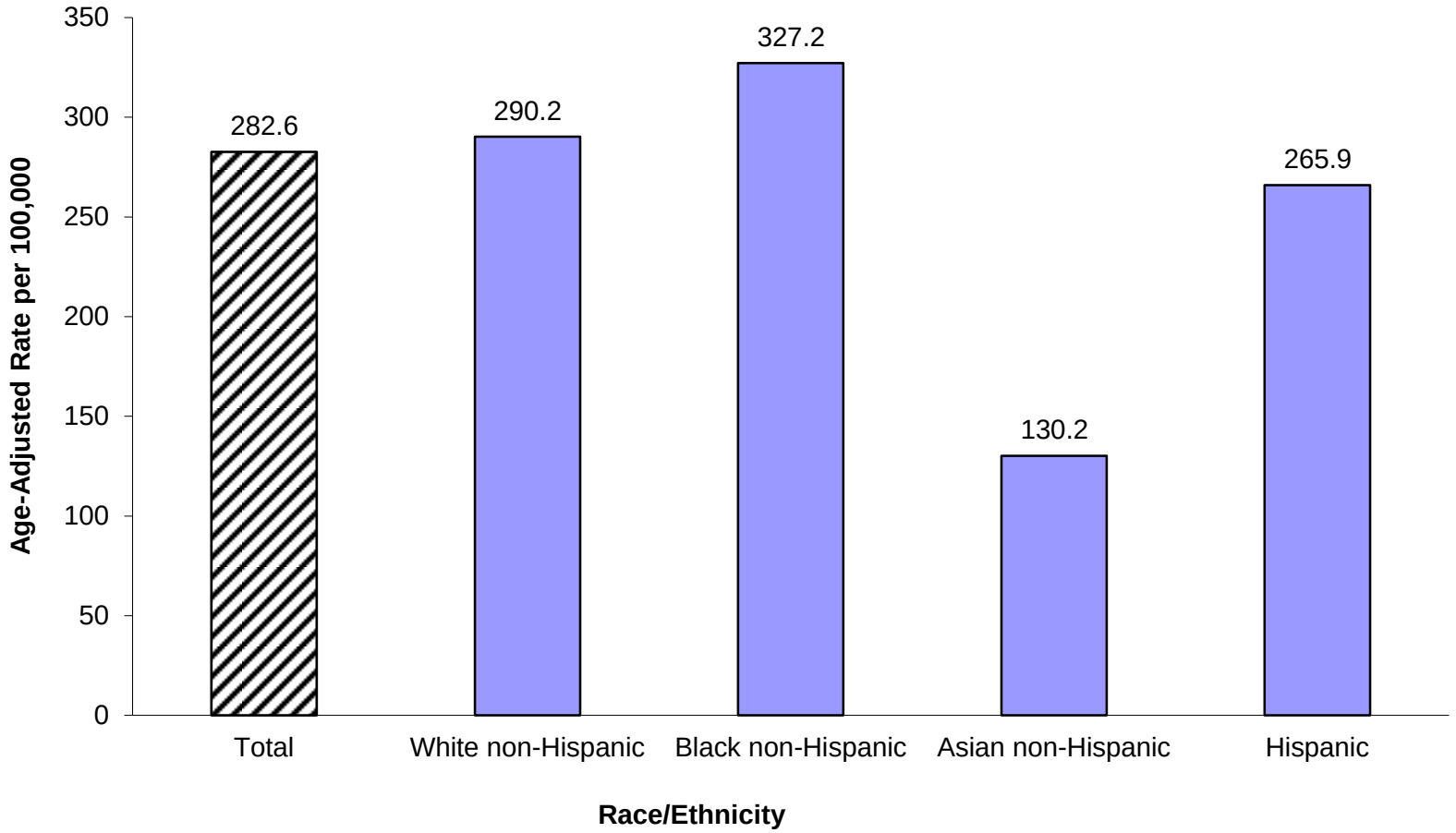
Figure 5. Proportion of Deaths Certified by Medical Examiner for Selected Causes of Death, Massachusetts: 2017



Note: See the Appendix section, "Circumstance for Referral to the Office of the Chief Medical Examiner (OCME)" for a list of circumstances requiring referral to the Medical Examiner's Office.

Note: Other Injuries include motor vehicle-related, poisonings, falls, etc.

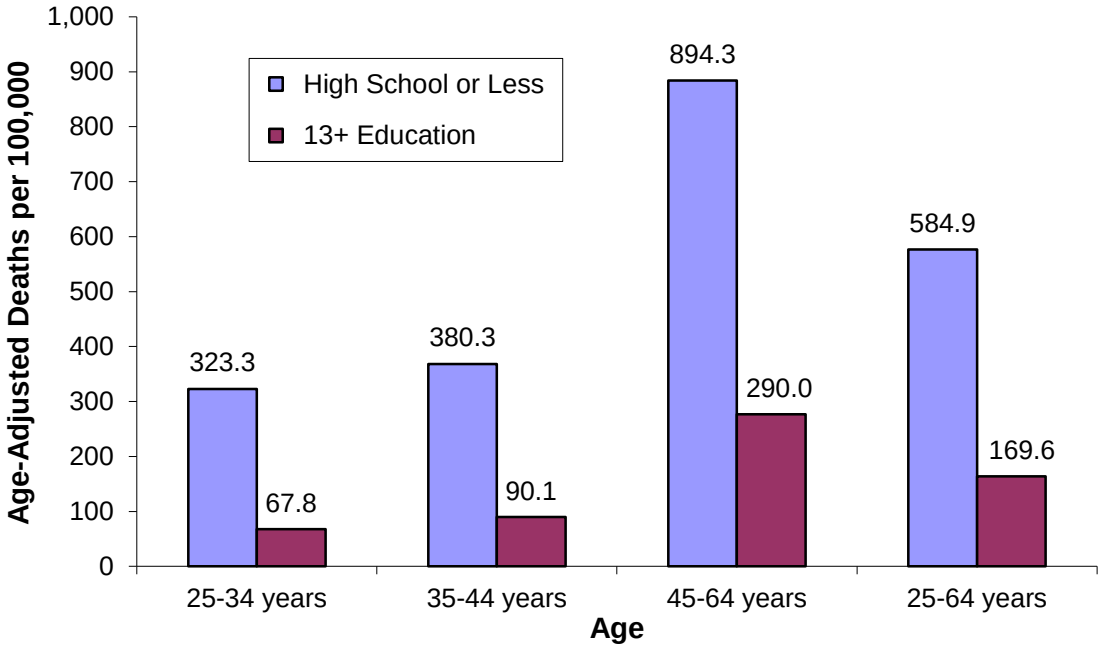
Figure 6. Premature Mortality Rate (PMR) by Race and Hispanic Ethnicity, Massachusetts: 2017



Note: Premature Mortality Rate is defined as deaths that occur before the age of 75 years per 100,000, age-adjusted to the 2000 US standard population under 75 years of age.

Table 5. Age-Specific and Age-Adjusted Death Rates for Ages 25-64 Years by Educational Attainment, Massachusetts: 2017

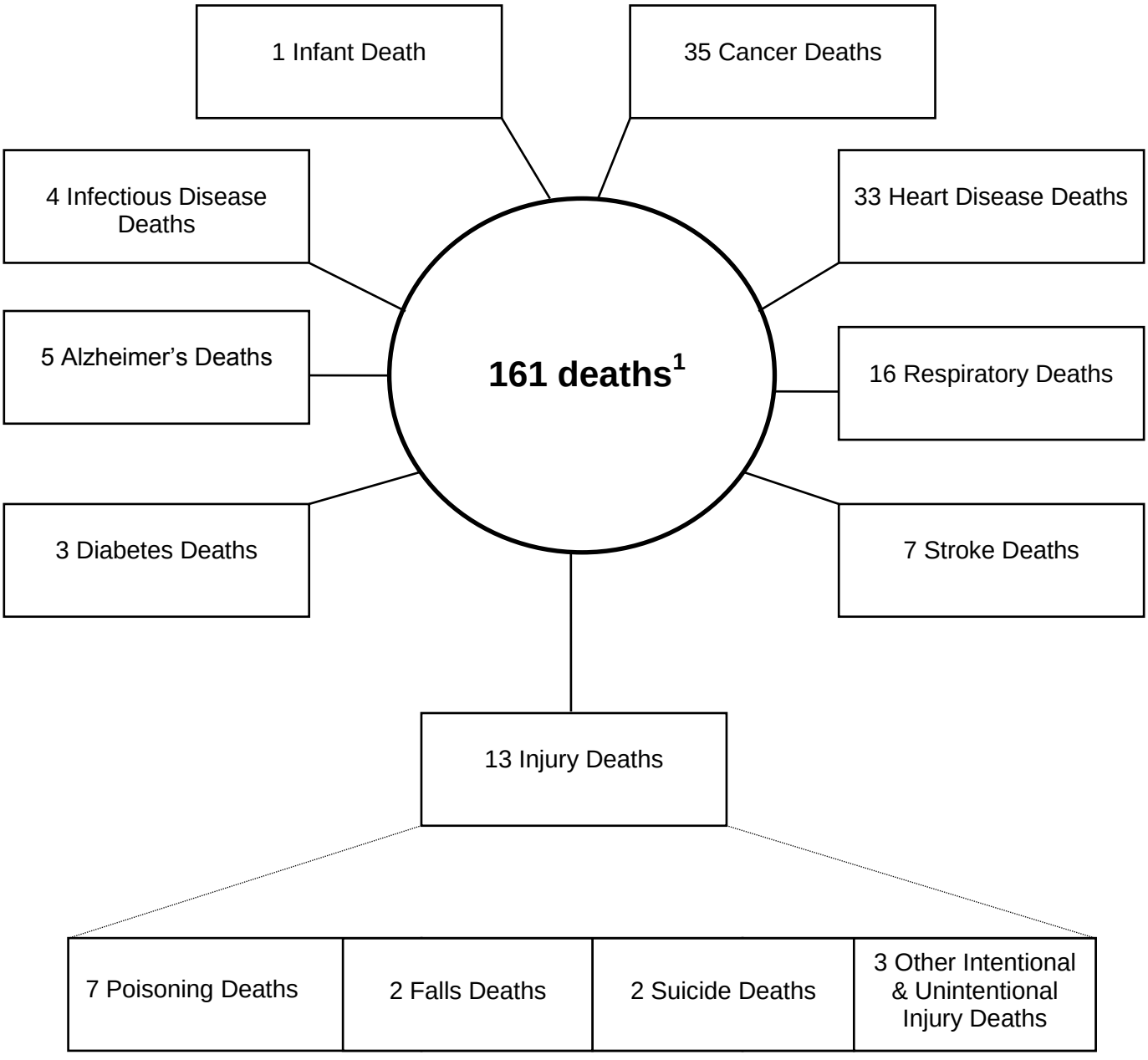
	Age-Specific Rates			Age-Adjusted Rates
Years of School Completed	**25-34 years**	**35-44 years**	**45-64 years**	**25-64 years**
High School or Less	323.3	380.3	894.3	**584.9**
13+ Education	67.8	90.1	290.0	**169.6**



Source: C15001: SEX BY AGE BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 18 YEARS AND OVER
Universe: Population 18 Years And Over. 2014 American Community Survey Estimates.

Figure 7. Daily Mortality Statistics, Massachusetts: 2017

Every day in 2017, in Massachusetts there were on average:



1. Includes 44 deaths due to other causes.

Table 6. Top Ten Leading Underlying Causes of Death by Age, Massachusetts: 2017

	Age Groups (number of deaths)								
Rank[1]	**<1 year**	**1-14 years**	**15-24 years**	**25-44 years**	**45-64 years**	**65-74 years**	**75-84 years**	**85+ years**	**All**
1	Congenital malformations (54)	Cancer (26)	Unintentional Injuries[3] (254)	Unintentional Injuries[3] (1,342)	Cancer (2,908)	Cancer (3,466)	Cancer (3,441)	Heart Disease (5,923)	**Cancer (12,691)**
2	Short gestation and LBW[1] (44)	Unintentional Injuries[3] (20)	Suicide (81)	Cancer (276)	Heart Disease (1,613)	Heart Disease (1,794)	Heart Disease (2,622)	Cancer (2,797)	**Heart Disease (11,923)**
3	SIDS[2] (24)	Ill-defined conditions[4] (11)	Homicide (50)	Suicide (249)	Unintentional Injuries[3] (1,139)	Chronic Lower Respiratory Disease[5] (620)	Chronic Lower Respiratory Disease[5] (884)	Alzheimer's Disease (1,288)	**Unintentional Injuries[3] (3,887)**
4	Pregnancy Complications (14)	Stroke (7)	Cancer (21)	Heart Disease (192)	Chronic liver disease (384)	Stroke (313)	Stroke (605)	Stroke (1,210)	**Chronic Lower Respiratory Disease[5] (2,676)**
5	Complications of placenta (11)	congenital malform (7)	ill-defined conditions[4](21)	Homicide (93)	Chronic Lower Respiratory Disease[5] (357)	Diabetes (311)	Alzheimer's Disease (430)	Chronic Lower Respiratory Disease[5] (959)	**Stroke (2,468)**
6	Intrauterine Hypoxia (10)	Heart Disease (6)	Heart Disease (12)	ill-defined conditions[4] (83)	Diabetes (296)	Unintentional Injuries[3] (272)	Influenza & Pneumonia (342)	Influenza & Pneumonia (791)	**Alzheimer's Disease (1,710)**
7	Respiratory distress (8)	Suicide (6)	Diabetes (4)	Chronic liver disease (69)	Suicide (259)	Nephritis (206)	Diabetes (336)	Unintentional Injuries[3] (599)	**Diabetes (1,267)**
8	Neonatal hemorrhage (8)	Influenza & Pneumonia (4)	Injuries of Undetermined Intent (4)	Diabetes (33)	Stroke (202)	Septicemia (179)	Nephritis (322)	Nephritis (532)	**Influenza & Pneumonia (1,243)**
9	Circulatory System (6)	in situ neoplasms (3)	Stroke (3)	Stroke (28)	Septicemia (139)	Chronic liver disease (174)	Unintentional Injuries[3] (283)	ill-defined conditions[4] (386)	**Nephritis (1,140)**
10	Necrotizing entercolitis (6)	Septicemia (2)	Chronic Lower Respiratory Disease (3)	Injuries of Undetermined Intent (20)	ill-defined conditions[4] (137)	Influenza & Pneumonia (170)	Parkinsons (242)	Diabetes (342)	**ill-defined conditions[4](890)**
All Causes	**263**	**122**	**501**	**2,788**	**9,516**	**9,719**	**13,272**	**22,663**	**58,844**

Note: Ranking based on number of deaths. The number of deaths is shown in parentheses.

1. LBW: Low birthweight. 2. SIDS: Sudden Infant Death Syndrome. 3. Injuries are subdivided into 4 separate categories by intent: unintentional, homicide, suicide, and injuries of undetermined intent (deaths where investigation has not determined whether injuries were accidental or purposely inflicted). 4. Ill-Defined Conditions: Includes ICD-10 codes R00-R99. 5. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

Table 7. Leading Underlying Causes of Death, Numbers and Age-Specific Rates by Gender, Massachusetts: 2017

		Total		Female		Male	
Age	Cause of Death[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
1-14	**TOTAL**	**122**	**11.4**	**44**	**8.4**	**78**	**14.3**
	Cancer	26	2.4	9	1.7	17	3.1
	Unintentional Injuries	20	1.9	5	1.0	15	2.7
	Ill Defined Conditions	11	1.0	5	1.0	6	1.1
	Stroke	7	0.7	3	-[4]	4	-[4]
15-24	**TOTAL**	**501**	**51**	**120**	**24.6**	**381**	**77.6**
	Unintentional Injuries	254	25.9	60	12.3	194	39.5
	Suicide	81	8.3	19	3.9	62	12.6
	Homicide	50	5.1	4	-[4]	46	9.4
	Cancer	21	2.1	8	1.6	13	2.6
25-44	**TOTAL**	**2,788**	**154.8**	**881**	**97.3**	**1,907**	**213.1**
	Unintentional Injuries	1,342	74.5	304	33.6	1,038	116.0
	Cancer	276	15.3	152	16.8	124	13.9
	Suicide	249	13.8	62	6.8	187	20.9
	Heart Disease	192	10.7	64	7.1	128	14.3
45-64	**TOTAL**	**9,516**	**504.3**	**3,558**	**364.7**	**5,958**	**653.8**
	Cancer	2,908	154.1	1,375	140.9	1,533	168.2
	Heart Disease	1,613	85.5	433	44.4	1,180	129.5
	Unintentional Injuries	1,139	60.4	322	33.0	817	89.7
	Chronic Liver Disease	384	20.4	112	11.5	272	29.8
65+[3]	**TOTAL**	**45,654**	**4098**	**24,949**	**3,948.3**	**20,705**	**4,294.0**
	Heart Disease	10,339	928	5,271	834.2	5,068	1,051.1
	Cancer	9,704	871	4,813	761.7	4,891	1,014.3
	Chronic Lower Respiratory Disease	2,463	221.1	1,419	224.6	1,044	216.5
	Stroke	2,128	191	1,308	207.0	820	170.1

1. Cause of Death classified using ICD-10 ranked based on number of deaths for all persons at specific age group. See Appendix for a list of ICD-10 codes. 2. Number of deaths per 100,000 residents in each age group. 3. See Table 8 for leading causes of death for detailed age groups for persons ages 65+ years. 4. Calculations based on values 1-4 are excluded.

Table 8. Leading Underlying Causes of Death, Numbers and Age-Specific Rates (Ages 65 and Older) by Gender, Massachusetts: 2017

		Total		Female		Male	
Age	**Cause of Death[1]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**	**Number**	**Rate[2]**
65-74	**TOTAL**	**9,719**	**1,509.3**	**4,258**	**1,231.2**	**5,461**	**1,832.0**
	Cancer	3,466	538.3	1,607	464.7	1,859	623.7
	Heart Disease	1,794	278.6	627	181.3	1,167	391.5
	Chronic Lower Respiratory Disease	620	96.3	326	94.3	294	98.6
	Stroke	313	48.6	126	36.4	187	62.7
75-84	**TOTAL**	**13,272**	**4,306.3**	**6,501**	**3,655.9**	**6,771**	**5,193.3**
	Cancer	3,441	1,116.5	1,669	938.6	1,772	1,359.1
	Heart Disease	2,622	850.7	1,126	633.2	1,496	1,147.4
	Chronic Lower Respiratory Disease	884	286.8	505	284.0	379	290.7
	Stroke	605	196.3	343	192.9	262	201.0
85+	**TOTAL**	**22,663**	**13,995.1**	**14,190**	**13,112.6**	**8,473**	**15,772.9**
	Heart Disease	5,923	3657.6	3,518	3,250.9	2,405	4,477.0
	Cancer	2,797	1727.2	1,537	1,420.3	1,260	2,345.6
	Alzheimers Disease	1,288	795.4	960	887.1	328	610.6
	Stroke	1,210	747.2	839	775.3	371	690.6

1. Cause of Death classified according to ICD-10 ranked based on number of deaths for all persons at specific age group. See Appendix for a list of ICD-10 codes. 2. Number of deaths per 100,000 residents in each age group.

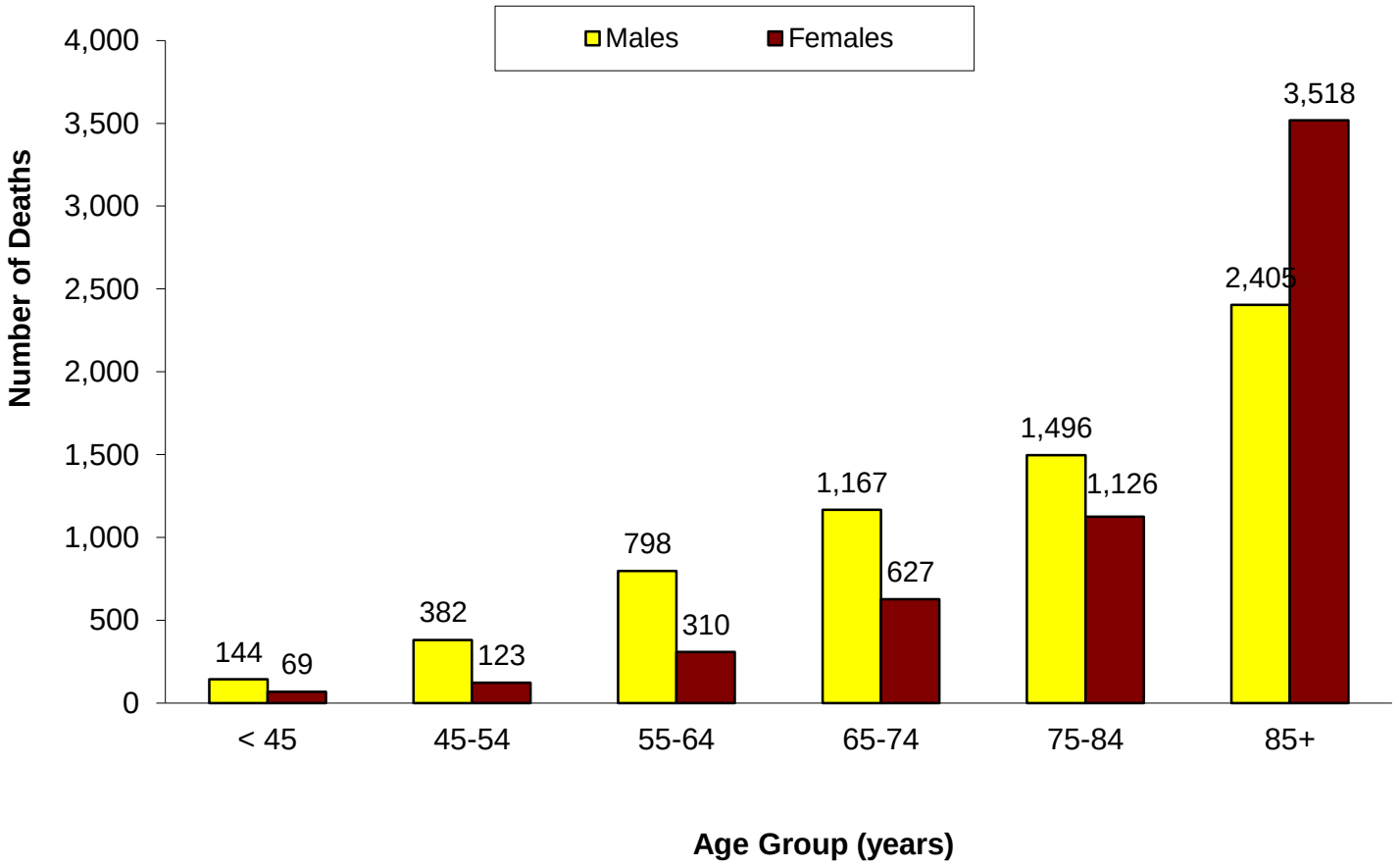
Table 9. Leading Causes of Death[1] and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2017

White non-Hispanic[2]			Black non-Hispanic[2]			Asian non-Hispanic[2]			Hispanic[2]		
Cause[3]	#	Rate[4]	Cause[3]	#	Rate[4]	Cause[3]	#	Rate[4]	Cause[3]	#	Rate[4]
Total	**52,038**	**697.1**	**Total**	**2,636**	**641.6**	**Total**	**1,165**	**358.5**	**Total**	**2,372**	**505.7**
Cancer	11,385	153.2	Cancer	603	145.2	Cancer	352	101.4	Cancer	446	98.0
Heart Disease	11,003	139.4	Heart Disease	485	122.2	Heart Disease	193	63.1	Unintentional Injuries[5]	365	49.0
Unintentional Injuries[5]	3,244	57.7	Unintentional Injuries[5]	183	36.8	Stroke	90	30.0	Heart Disease	359	86.1
Chronic Lower Respiratory Disease	2,682	35.2	Stroke	129	32.9	Unintentional Injuries[5]	58	15.7	Diabetes	86	20.9
Stroke	2,044	26.0	Diabetes	123	30.0	Nephritis	37	12.8	Stroke	73	19.7
Alzheimer"s Disease	1,726	20.9	Nephritis	91	23.3	Influenza & Pneumonia	29	10.1	Chronic Lower Respiratory Disease	64	15.0
Influenza & Pneumonia	1,326	16.7	Ill-Defined Conditions-Signs and Symptoms	63	14.1	Suicide	25	5.5	Nephritis	55	13.9
Diabetes	1,069	14.2	Homicide	61	11.6	Diabetes	24	7.4	Suicide	53	6.8
Nephritis	1,002	12.8	Chronic Lower Respiratory Disease	57	14.9	Ill-Defined Conditions-Signs and Symptoms	24	6.7	Ill-Defined Conditions-Signs and Symptoms	52	9.2
Ill-Defined Conditions-Signs and Symptoms	763	10.8	Hypertension	48	11.5	Chronic Lower Respiratory Disease	21	6.9	Chronic liver disease	51	9.7

Total		
Cause[3]	#	Rate[4]
Total	**58,844**	**675.7**
Cancer	12,937	149.1
Heart Disease	12,165	134.5
Unintentional Injuries[5]	3,913	52.6
Chronic Lower Respiratory Disease	2,843	32.4
Stroke	2,370	26.5
Alzheimer"s Disease	1,844	19.9
Influenza & Pneumonia	1,434	15.8
Diabetes	1,323	15.1
Nephritis	1,194	13.4
Ill-Defined Conditions-Signs and Symptoms	912	10.9

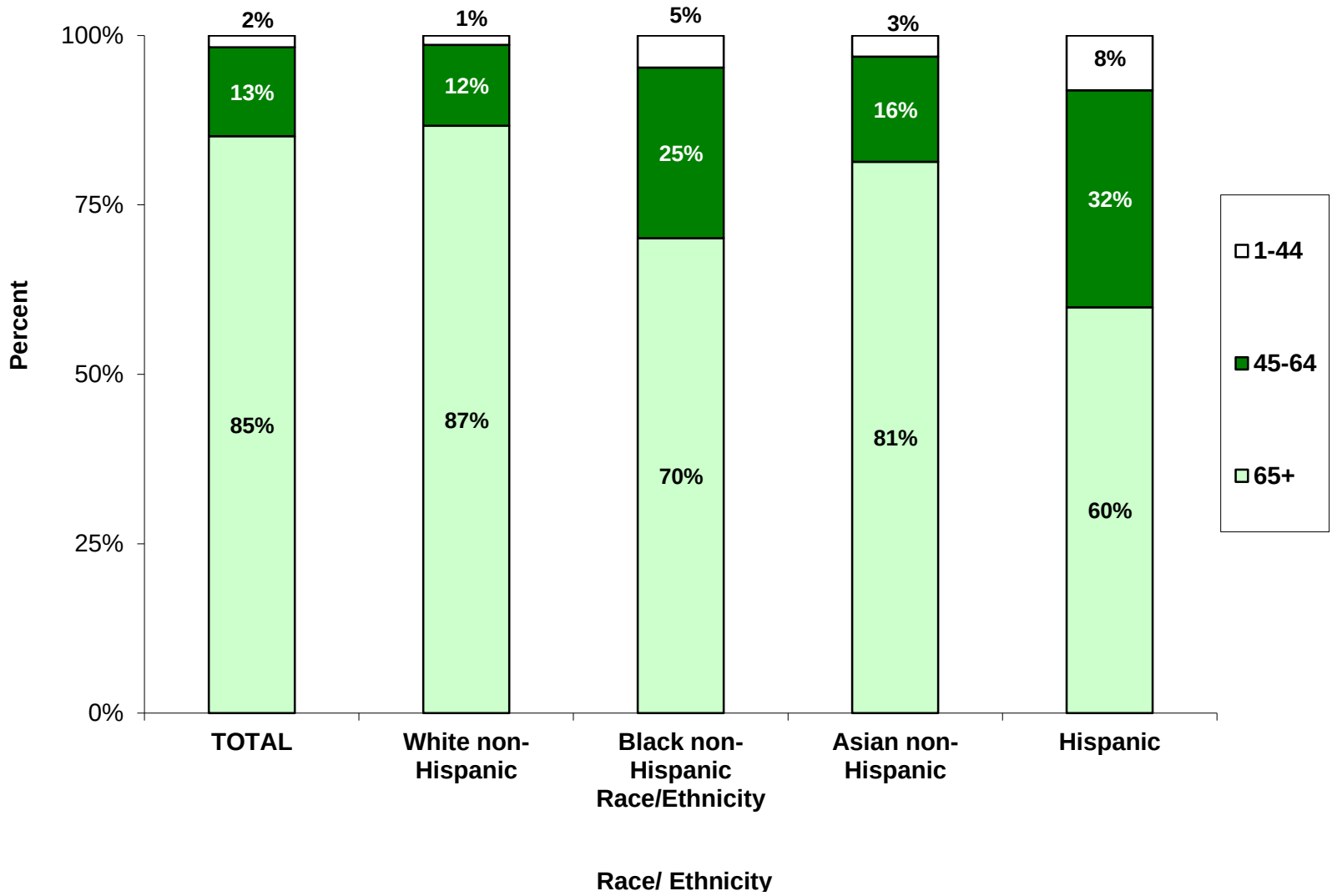
1. Ranking based on number of deaths. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation. 3. Underlying Cause of Death based on ICD-10. Please see Appendix for a list of ICD-10 codes used. 4. All rates are age-adjusted per 100,000 residents using the 2000 US standard population. 5. Unintentional injuries such as motor vehicle-related deaths, poisonings, falls, fires, and drownings that were not intended to occur.

Figure 8. Number of Heart Disease Deaths by Age Group and Gender, Massachusetts: 2017



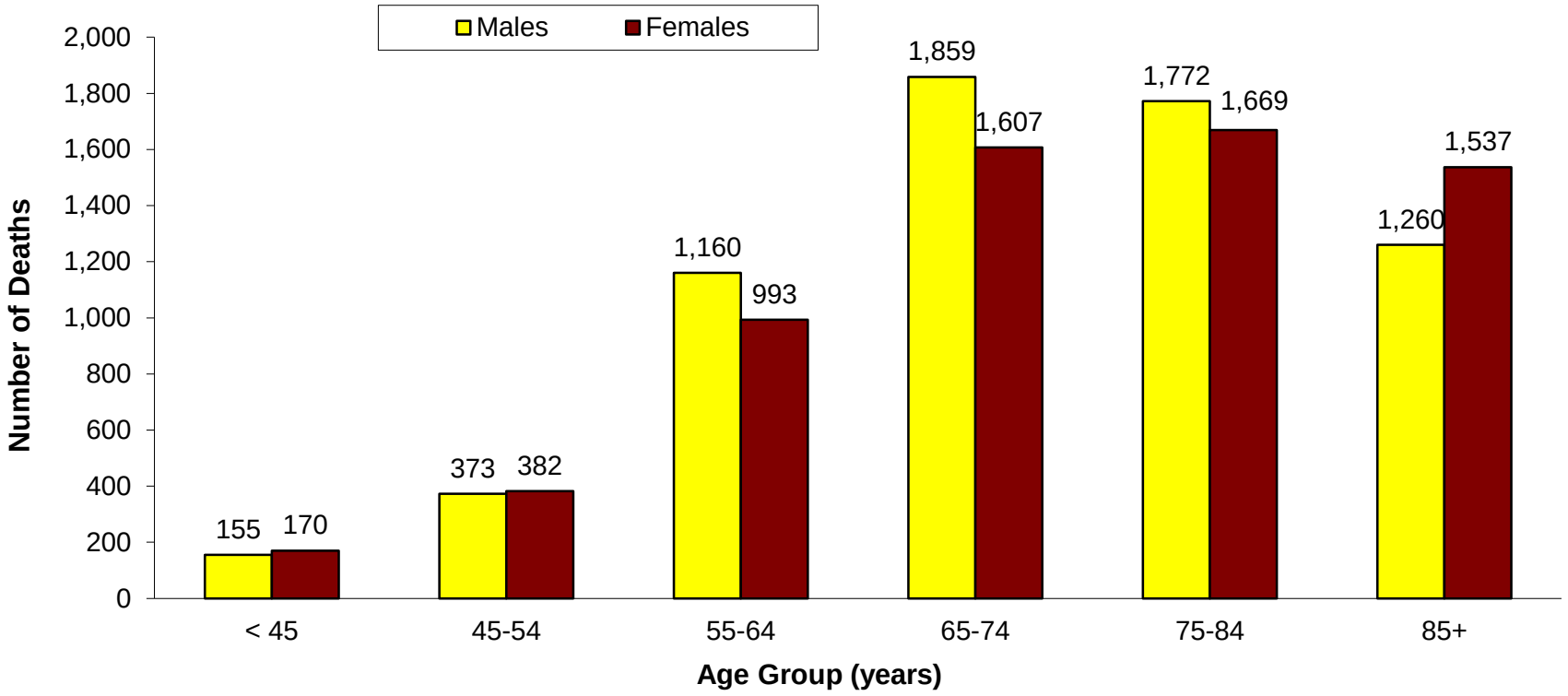
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51.

Figure 9. Age Distribution by Race and Hispanic Ethnicity for Heart Disease Deaths, Massachusetts: 2017



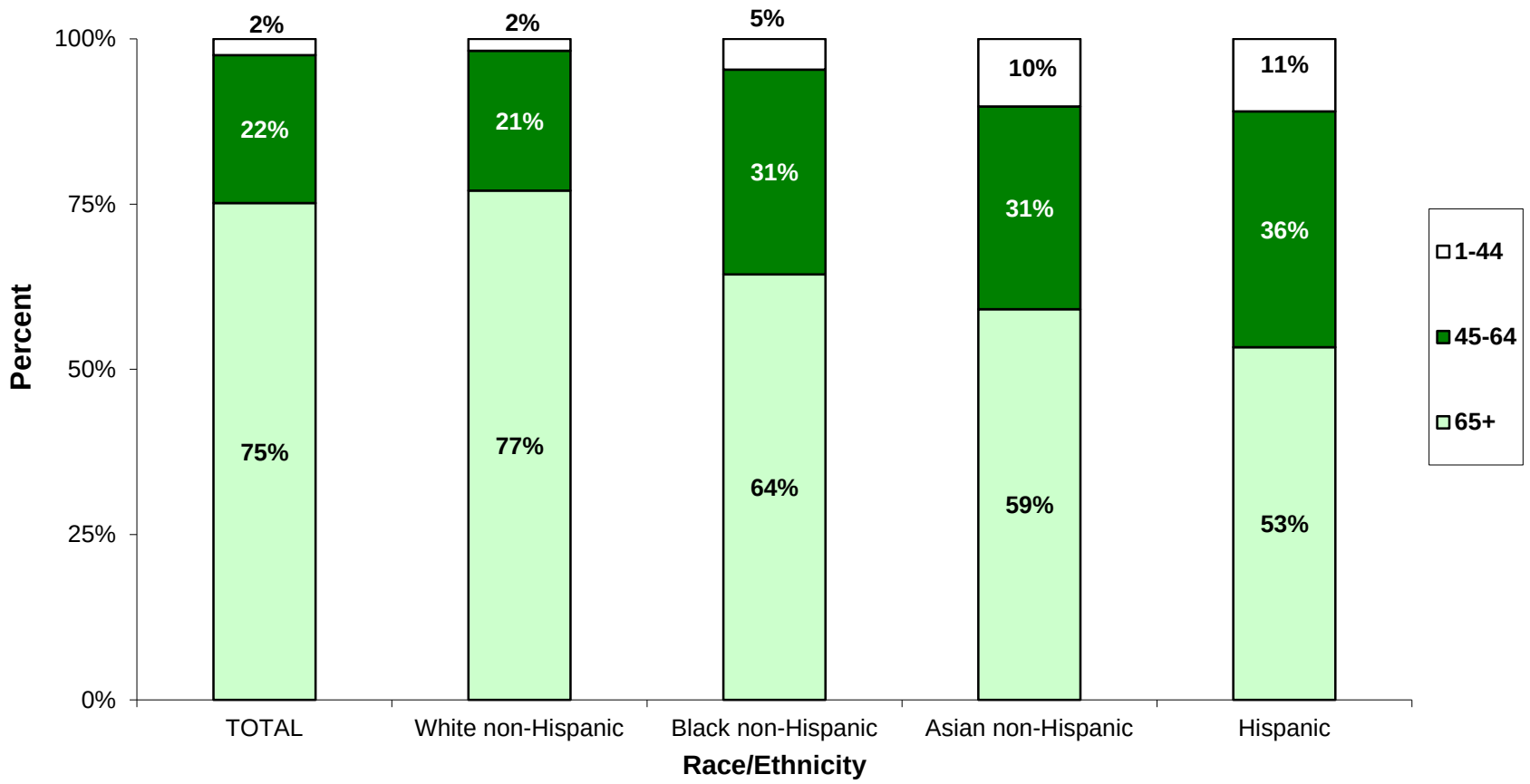
Note: The ICD-10 codes used for heart disease deaths were I00-I09, I11, I13, and I20-I51.

Figure 10. Number of Cancer Deaths by Age Group and Gender, Massachusetts: 2017



Note: The ICD-10 codes used for cancer deaths were C00-C97.

Figure 11. Age Distribution by Race and Hispanic Ethnicity for Cancer Deaths, Massachusetts: 2017



Note: The ICD-10 codes used for cancer deaths were C00-C97.

Table 10. Heart Disease and Cancer Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates[1], Massachusetts: 2004-2017

Heart Disease

Year	White non-Hispanic[2] Male	White non-Hispanic[2] Female	White non-Hispanic[2] Total	Black non-Hispanic[2] Male	Black non-Hispanic[2] Female	Black non-Hispanic[2] Total
2004	233.1	150.3	185.7	268.1	148.3	198.8
2005	220.6	139.1	174.9	233.7	174.5	199.8
2006	216.5	138.8	172.2	222.3	127.6	165.3
2007	216.2	134.2	168.5	233.5	142.7	180.8
2008	217.1	133.1	167.9	226.7	151.7	181.7
2009	211.3	122.6	158.4	217.3	157.3	181.6
2010	197.5	119.6	152.9	222.3	119.4	159.7
2011	196.0	113.0	148.0	185.6	114.1	143.7
2012	187.5	113.0	144.7	167.3	125.2	144.3
2013	192.3	114.3	147.4	164.6	99.1	128.3
2014	185.5	109.4	142.0	168.3	98.0	127.9
2015	184.8	111.1	142.7	156.6	85.6	114.3
2016	179.8	109.1	139.2	147.5	90.8	113.9
2017	187.3	104.1	139.4	148.2	101.9	122.2

Year	Asian non-Hispanic[2] Male	Asian non-Hispanic[2] Female	Asian non-Hispanic[2] Total	Hispanic[2] Male	Hispanic[2] Female	Hispanic[2] Total
2004	56.9	54.3	56.1	129.9	77.4	100.3
2005	77.5	48.2	61.3	118.5	83.7	99.2
2006	73.6	70.0	72.8	124.2	84.9	102.3
2007	83.3	52.9	67.4	124.9	61.8	88.3
2008	86.0	51.7	66.3	93.2	66.1	78.3
2009	69.6	51.3	60.1	111.6	62.7	83.8
2010	64.8	50.4	57.1	90.8	66.8	76.9
2011	74.1	61.0	67.5	114.9	72.0	89.7
2012	74.7	43.2	57.1	106.8	70.5	85.8
2013	67.7	43.2	54.4	81.3	56.4	67.7
2014	74.3	42.6	57.5	83.4	65.4	72.9
2015	78.6	47.2	60.6	104.6	77.6	90.0
2016	61.5	50.4	55.3	103.7	73.2	87.5
2017	74.6	52.9	63.1	107.0	71.5	86.1

Table 10 (continued). Heart Disease and Cancer Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates, Massachusetts: 2004-2017

Cancer

	White non-Hispanic[2]			Black non-Hispanic[2]		
Year	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
2004	230.4	168.4	192.5	277.6	155.7	200.1
2005	226.1	163.2	188.1	264.2	168.1	204.1
2006	234.9	161.5	190.0	265.6	180.9	212.4
2007	226.0	156.5	183.2	270.7	159.7	201.7
2008	221.4	154.8	180.6	255.0	163.7	197.9
2009	212.7	157.0	177.7	244.7	164.7	193.1
2010	211.9	150.8	174.9	244.0	131.3	174.3
2011	206.5	145.9	170.4	209.9	162.3	178.0
2012	201.3	149.1	170.2	229.4	150.7	180.6
2013	193.2	144.0	163.8	207.0	141.7	166.3
2014	192.1	137.4	159.8	194.0	114.1	145.0
2015	185.2	138.6	157.3	161.8	116.3	133.2
2016	185.2	133.2	154.3	165.3	113.6	133.7
2017	181.7	133.3	153.2	192.0	116.5	145.2

	Asian non-Hispanic[2]			Hispanic[2]		
Year	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
2004	109.5	79.7	93.1	125.6	82.5	100.4
2005	138.9	79.5	106.1	118.2	97.3	105.7
2006	126.0	91.7	107.2	119.9	74.3	93.7
2007	124.4	76.4	98.4	125.0	90.0	104.7
2008	132.1	89.3	109.0	141.2	83.1	107.8
2009	123.2	71.0	94.3	129.9	98.2	111.8
2010	128.0	98.1	111.8	129.9	87.2	103.9
2011	127.1	92.6	107.3	125.6	84.0	101.1
2012	137.3	78.8	104.6	150.5	94.4	117.7
2013	106.3	66.3	84.4	122.6	91.7	105.1
2014	131.0	83.3	104.7	115.9	89.3	100.2
2015	112.9	86.5	97.9	114.3	83.3	95.6
2016	124.8	71.9	95.0	109.2	80.3	91.7
2017	123.4	83.8	101.4	116.3	86.3	98.0

1. Rates are per 100,000 age-adjusted to the 2000 US standard population. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation.

Table 11. Number and Age-Adjusted Rates of Cancer Deaths by Selected Causes and Gender, Massachusetts: 2017

Cause of Death[1]	ICD-10 Code	Total		Female		Male	
		#	Rate[2,3]	#	Rate[2]	#	Rate[2]
Total Cancer Deaths	**C00-C97**	**12,937**	**149.1**	**6,358**	**129.2**	**6,579**	**177.6**
Bladder	C67	430	4.9	125	2.3	305	8.6
Brain and nervous system	C70-C72	397	4.7	179	3.9	218	5.7
Cervix	C53	46	1.1	46	1.1	.	.
Colorectal	C18-C21	990	11.5	480	9.6	510	13.9
Esophagus	C15	392	4.4	91	1.8	301	7.9
Female breast[4]	C50	894	18.5	894	18.5	.	.
Hodgkin's disease	C81	19	0.2	7	0.1	12	0.3
Kidney and other urinary organs	C64, C65	244	2.8	84	1.6	160	4.3
Leukemia	C91-C95	507	5.9	211	4.0	296	8.4
Lung	C33, C34	3,074	35.2	1,580	32.1	1,494	39.4
Melanoma of the skin	C43	200	2.3	80	1.6	120	3.3
Multiple myeloma	C88, C90	262	3.1	126	2.5	136	3.8
Non-Hodgkin's lymphoma	C82-C85	454	5.4	206	4.2	248	7.1
Ovary	C56	337	7.1	337	7.1	.	.
Pancreas	C25	1,002	11.4	495	10.1	507	13.2
Prostate	C61	640	18.1	.	.	640	18.1
Stomach	C16	269	3.2	103	2.2	166	4.5
Uterus	C54, C55	225	4.5	225	4.5	.	.
All other cancers	Residual	2,555	29.4	1,089	21.9	1,466	39.1

1. Common terms are used to describe the causes of cancer deaths. For detailed terminology of cancer sites, please see the ICD-10 code list in the Appendix. 2. Rates are per 100,000 age-adjusted to the 2000 US standard population. 3. The total resident population is used to calculate all "Total Rates" except for ICD-10 codes C50, C53-C56, which are based on the total female population, and ICD-10 C61, which is based on the total male population. 4. Includes only female breast cancer.

Table 12. Selected Causes of Cancer Deaths by Age, Massachusetts: 2017

Age	Cause of death[1]	ICD-10 Code	Number	Age-specific rate[2]
1 – 14 years	**Total**		**26**	**2.4**
	Brain and nervous system	C70-C72	11	1.0
	Leukemia	C91-C95	4	-[3]
	Non-Hodgkin's lymphoma	C82-C85	2	-[3]
	Lung	C33, C34	1	-[3]
15 - 24 years	**Total**		**21**	**2.1**
	Brain and nervous system	C70-C72	6	0.6
	Non-Hodgkin's lymphoma	C82-C85	3	-[3]
	Leukemia	C91-C95	3	-[3]
	Ovary	C56	1	-[3]
25 – 44 years	**Total**		**276**	**15.3**
	Female breast[4]	C50	40	4.4
	Colorectal	C18-C21	31	1.7
	Brain and nervous system	C70-C72	28	1.6
	Leukemia	C91-C95	18	1.0
45 – 64 years	**Total**		**2,908**	**154.1**
	Lung	C33, C34	684	36.3
	Colorectal	C18-C21	270	14.3
	Female breast[4]	C50	250	25.6
	Pancreas	C25	235	12.5
65 + years	**Total**		**9,704**	**871.0**
	Lung	C33, C34	2,376	213.3
	Pancreas	C25	756	67.9
	Colorectal	C18-C21	689	61.8
	Female breast[4]	C50	604	95.6
65-74 years	**Total**		**3,466**	**538.3**
	Lung	C33, C34	957	148.6
	Pancreas	C25	315	48.9
	Female breast[4]	C50	227	65.6
	Colorectal	C18-C21	183	28.4
75-84 years	**Total**		**3,441**	**1,116.5**
	Lung	C33, C34	896	290.7
	Pancreas	C25	263	85.3
	Colorectal	C18-C21	238	77.2
	Prostate[5]	C61	194	148.8
85+ years	**Total**		**2,797**	**1,727.2**
	Lung	C33, C34	523	323.0
	Colorectal	C18-C21	268	165.5
	Prostate[5]	C61	240	446.8
	Female breast[4]	C50	205	189.4

1. Common terms are used to describe causes of cancer death. For detailed terminology, please see the ICD-10 codes listed in the Appendix. 2. Number of deaths per 100,000 residents in each age group. 3. Calculations based on values 1-4 are excluded.
4. Calculation based on female population in specified age group. 5. Calculation based on male population in specified age group.

Table 13. Leading Causes of Cancer Deaths and Age-Adjusted Rates by Race and Hispanic Ethnicity, Massachusetts: 2017

White non-Hispanic[1]			Black non-Hispanic[1]			Asian non-Hispanic[1]			Hispanic[1]		
Cause[2]	**#**	**Rate[3]**	**Cause[2]**	**#**	**Rate[3]**	**Cause[2]**	**#**	**Rate[3]**	**Cause[2]**	**#**	**Rate[3]**
Lung	2,780	37.0	Lung	99	23.8	Lung	89	27.1	Lung	67	15.3
Pancreas	876	11.6	Female Breast[4]	58	22.8	Colorectal	30	9.0	Female Breast[4]	37	12.8
Colorectal	863	11.8	Prostate[5]	56	41.0	Pancreas	27	8.0	Colorectal	34	7.5
Female Breast[4]	765	18.7	Pancreas	51	12.2	Female Breast[4]	18	8.7	Pancreas	34	8.3
Prostate[5]	542	17.4	Colorectal	50	12.4	Stomach	16	4.7	Stomach	30	6.0
Total Cancer	**11,385**	**153.2**	**Total Cancer**	**603**	**145.2**	**Total Cancer**	**352**	**101.4**	**Total Cancer**	**446**	**98.0**

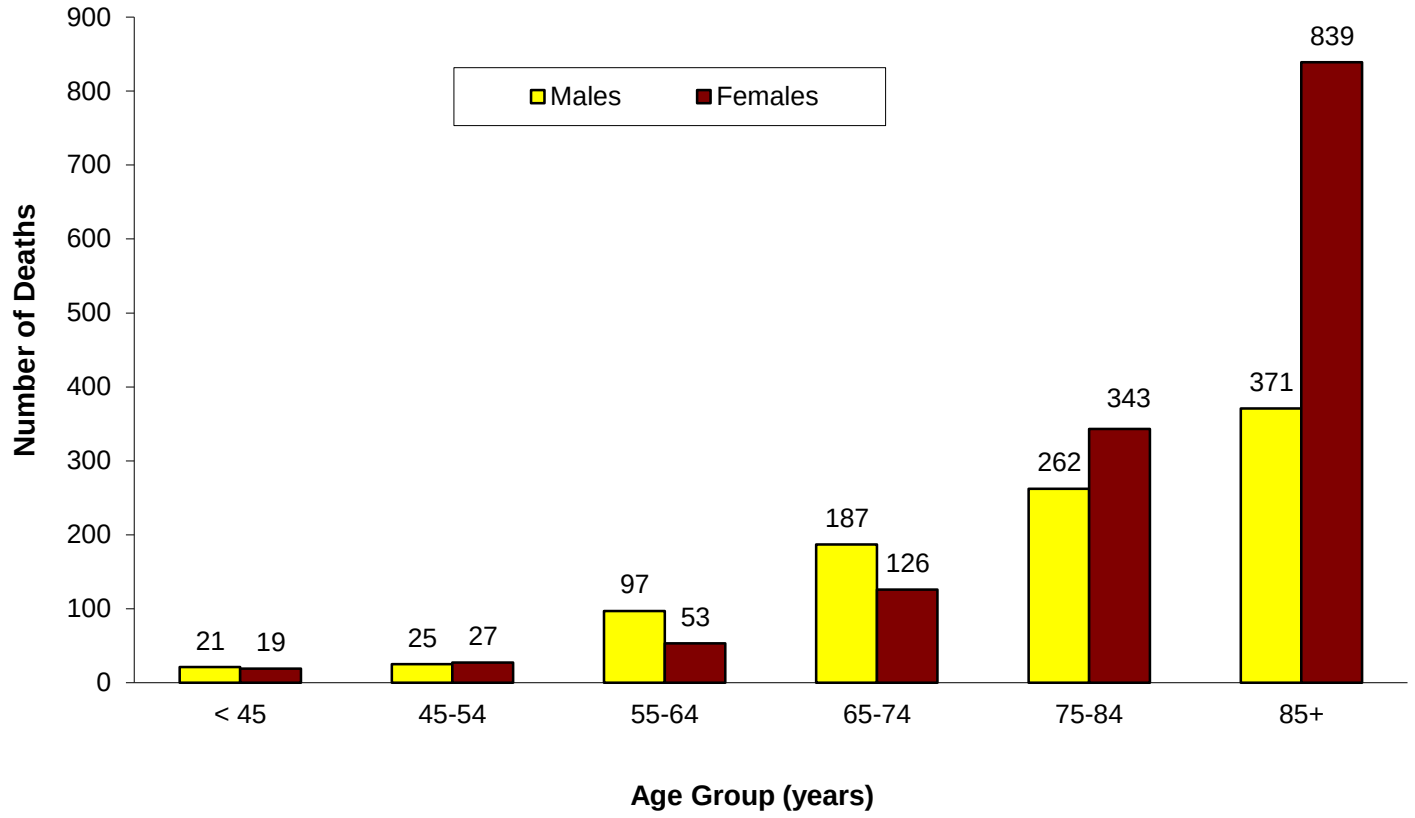
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see the Technical Notes in the Appendix for a more detailed explanation. 2. ICD-10 codes used. Please see the ICD-10 codes listing in the Appendix for detailed terminology. 3. Rates are per 100,000 age-adjusted to the 2000 US standard population. 4. Calculation based on female population. 5. Calculation based on male population.

Table 14. Number, Percent, and Age-Adjusted Rates of Stroke Deaths by Type and Gender, Massachusetts: 2017

Cause of Death	ICD-10 Code	Total			Female			Male		
		#	%	Rate[1]	#	%	Rate[1]	#	%	Rate[1]
Total Stroke Deaths	**I60-I69**	**2,370**	**100%**	**26.5**	**1,407**	**100%**	**25.5**	**963**	**100%**	**27.2**
Subarachnoid hemorrhage	I60	104	4.4%	1.3	63	4.5%	1.4	41	4.3%	1.1
Intracerebral and other intracranial hemorrhage	I61-I62	505	21.3%	5.8	250	17.8%	4.8	255	26.5%	7.1
Cerebral infarction	I63	241	10.2%	2.7	147	10.4%	2.7	94	9.8%	2.6
Stroke, not specified	I64	1,025	43.2%	11.2	674	47.9%	11.6	351	36.4%	10.1
Other	I67, I69	495	20.9%	5.5	273	19.4%	4.9	222	23.1%	6.3

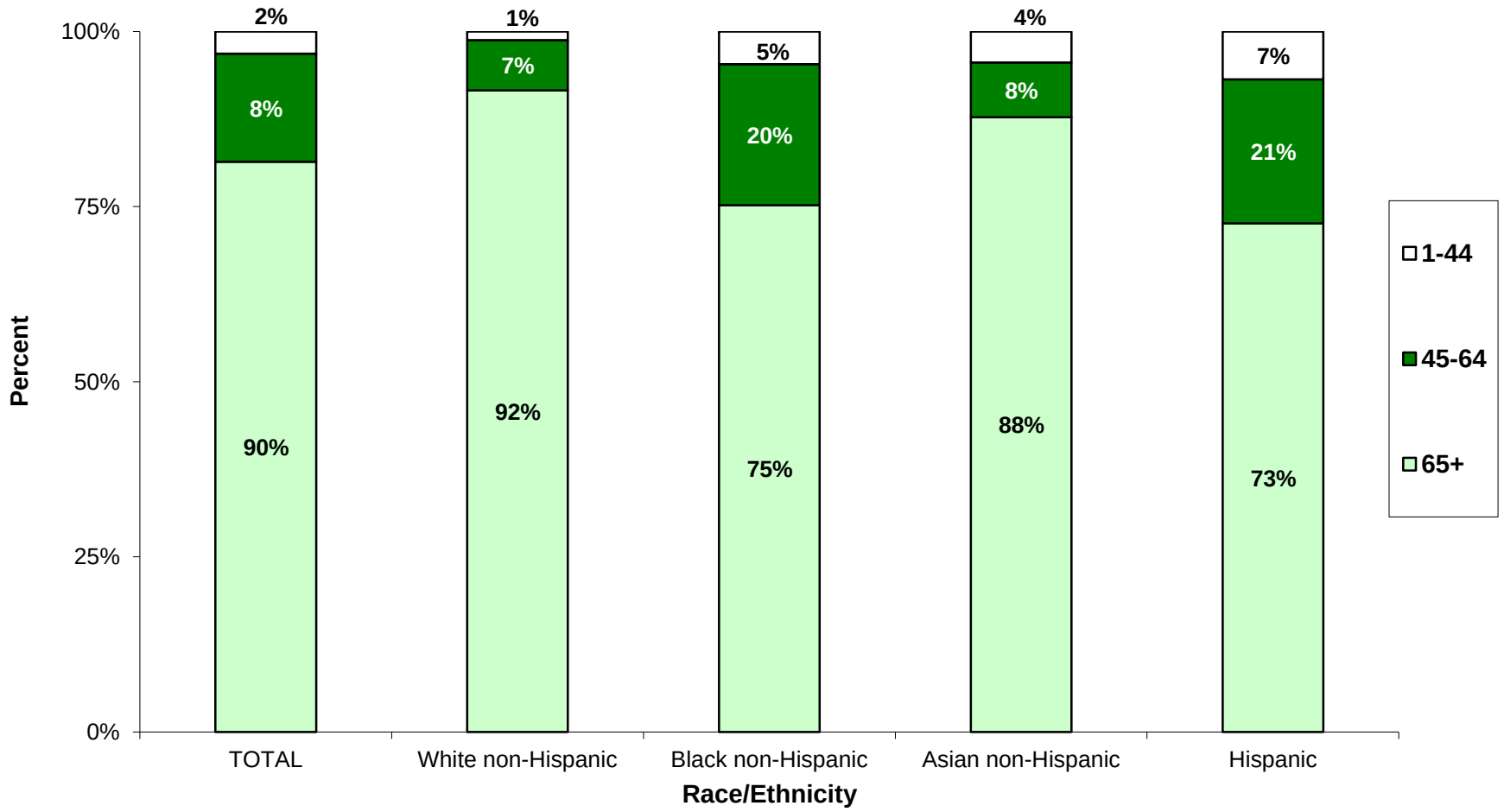
1. All rates are age-adjusted to the 2000 US Standard Population. Rates are per 100,000 population.

Figure 12. Number of Stroke Deaths by Age Group and Gender, Massachusetts: 2017



Note: The ICD-10 codes used for stroke deaths were I60-I69.

Figure 13. Age Distribution by Race and Hispanic Ethnicity for Stroke Deaths, Massachusetts: 2017



Note: The ICD-10 codes used for stroke deaths were I60-I69.

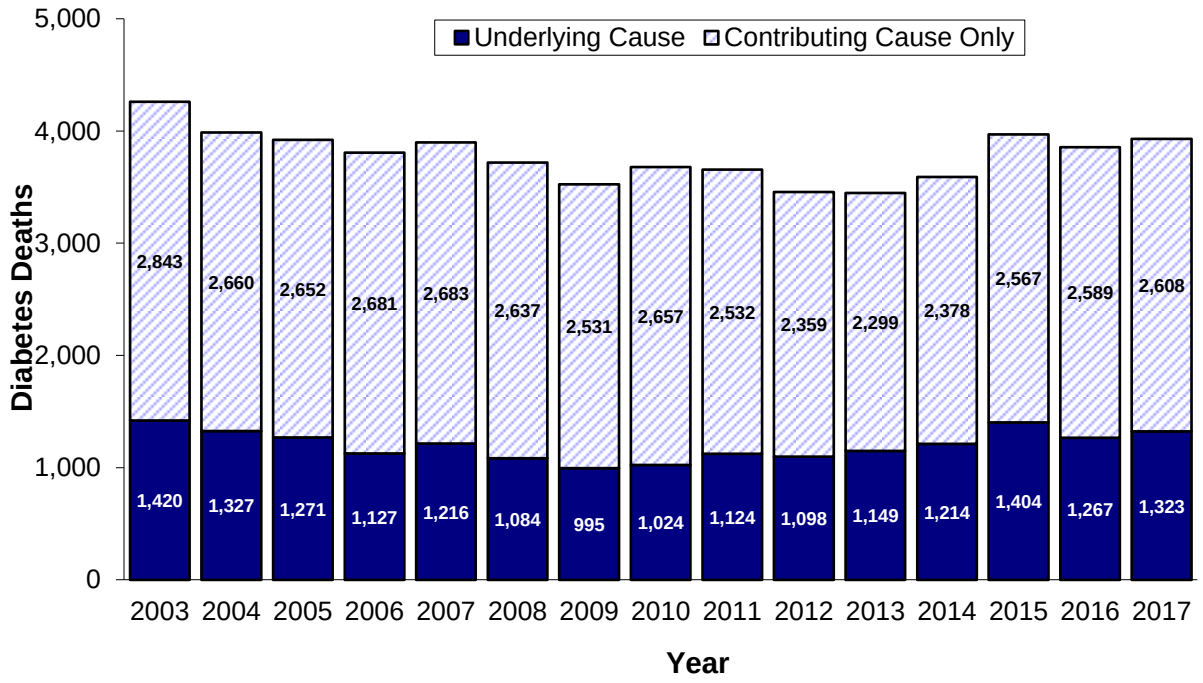
Table 15. Stroke Deaths by Race and Hispanic Ethnicity and Gender, Age-Adjusted Rates[1], Massachusetts: 2004-2017

Year	White non-Hispanic[2] Male	White non-Hispanic[2] Female	White non-Hispanic[2] Total	Black non-Hispanic[2] Male	Black non-Hispanic[2] Female	Black non-Hispanic[2] Total
2004	42.8	40.4	41.9	52.1	58.3	56.2
2005	37.7	37.3	37.9	50.6	44.9	47.5
2006	37.5	35.6	36.7	57.6	51.9	54.5
2007	35.4	34.0	34.8	34.4	36.4	35.6
2008	33.1	33.4	33.6	53.5	40.7	45.5
2009	31.7	31.7	32.0	51.7	36.0	42.7
2010	30.5	30.1	30.5	46.2	39.9	42.9
2011	30.4	29.6	30.2	34.4	29.8	32.0
2012	27.6	28.0	28.1	37.2	34.2	36.1
2013	26.4	27.9	27.7	33.4	29.6	31.3
2014	26.8	28.8	28.4	35.8	30.2	32.7
2015	27.4	28.0	28.0	33.1	24.7	28.0
2016	26.8	27.2	27.4	29.1	34.0	32.8
2017	26.4	25.3	26.0	39.4	27.3	32.9

Year	Asian non-Hispanic[2] Male	Asian non-Hispanic[2] Female	Asian non-Hispanic[2] Total	Hispanic[2] Male	Hispanic[2] Female	Hispanic[2] Total
2004	35.2	32.7	34.1	39.7	32.6	35.5
2005	28.2	27.5	28.1	33.2	24.5	28.2
2006	34.5	41.9	39.2	26.5	29.6	28.8
2007	26.7	29.5	28.4	32.0	26.7	28.9
2008	23.4	27.1	25.6	23.9	18.4	21.1
2009	38.1	22.0	28.1	23.9	16.7	19.9
2010	35.2	27.0	30.8	31.1	22.1	26.0
2011	21.3	25.5	24.2	22.0	23.3	23.1
2012	31.0	24.4	27.0	19.2	27.2	24.7
2013	16.0	25.6	21.6	25.7	18.1	21.2
2014	19.1	20.8	20.4	24.8	22.2	23.4
2015	28.6	26.4	27.3	23.7	22.5	23.5
2016	24.9	26.7	26.4	26.5	19.6	22.4
2017	32.0	28.4	30.0	18.0	19.8	19.7

1. Rates are per 100,000 age-adjusted to the 2000 US standard population. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation.

Figure 14. Diabetes Deaths, Massachusetts: 2003-2017



Note: The ICD-10 codes used for diabetes deaths were E10-E14.

Table 16. Diabetes Deaths by Gender, Massachusetts: 2017

	Proportion of all Deaths (%)[1]			Number		
Cause of Death	Males	Females	Total	Males	Females	Total
Underlying	2.6%	1.9%	2.2%	767	555	1,323
Contributing/Associated	4.9%	3.9%	4.4%	1,439	1,169	2,608
Total Diabetes-Related	**7.6%**	**5.8%**	**6.7%**	**2,206**	**1,725**	**3,931**

Note: The ICD-10 codes used for diabetes deaths were E10-E14.

1. Proportions are out of total deaths due to all causes.

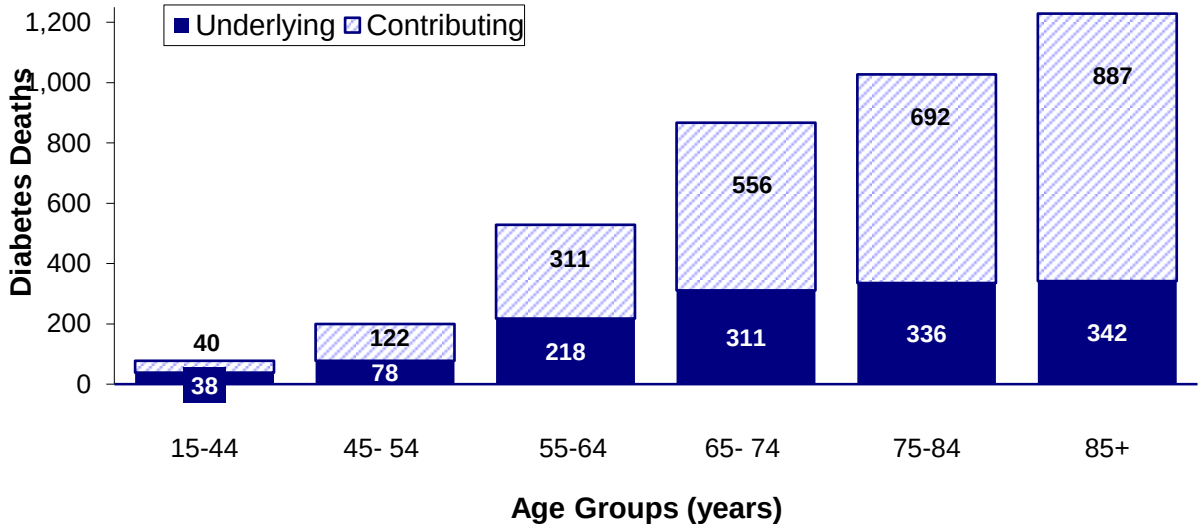
Table 17. Diabetes Deaths by Race and Hispanic Ethnicity, Massachusetts: 2017

Cause of Death	Race/Hispanic Ethnicity				
	White non-Hispanic	Black non-Hispanic	Hispanic	Asian non-Hispanic	Total
	Number				
Underlying	1,069	123	86	24	1,323
Contributing/Associated	2,169	179	139	73	2,608
Total Diabetes-Related	3,238	302	225	97	3,931
Total Deaths (All Causes)	***52,038***	***2,636***	***2,372***	***1,165***	***58,844***
	Proportion of all deaths (%)				
Underlying	2.1	4.7	3.6	2.1	2.2
Contributing/Associated	4.2	6.8	5.9	6.3	4.4
Total Diabetes-Related	***6.2***	***11.5***	***9.5***	***8.3***	***6.7***
	Death Rates[1]				
Underlying	14.2	30	20.9	7.4	*15.1*
Contributing/Associated	28.4	45.7	33.6	24.7	*29.6*
Total Diabetes-Related	***42.6***	***75.8***	***54.5***	***32.2***	***44.7***

Note: The ICD-10 codes used for diabetes deaths were E10-E14.

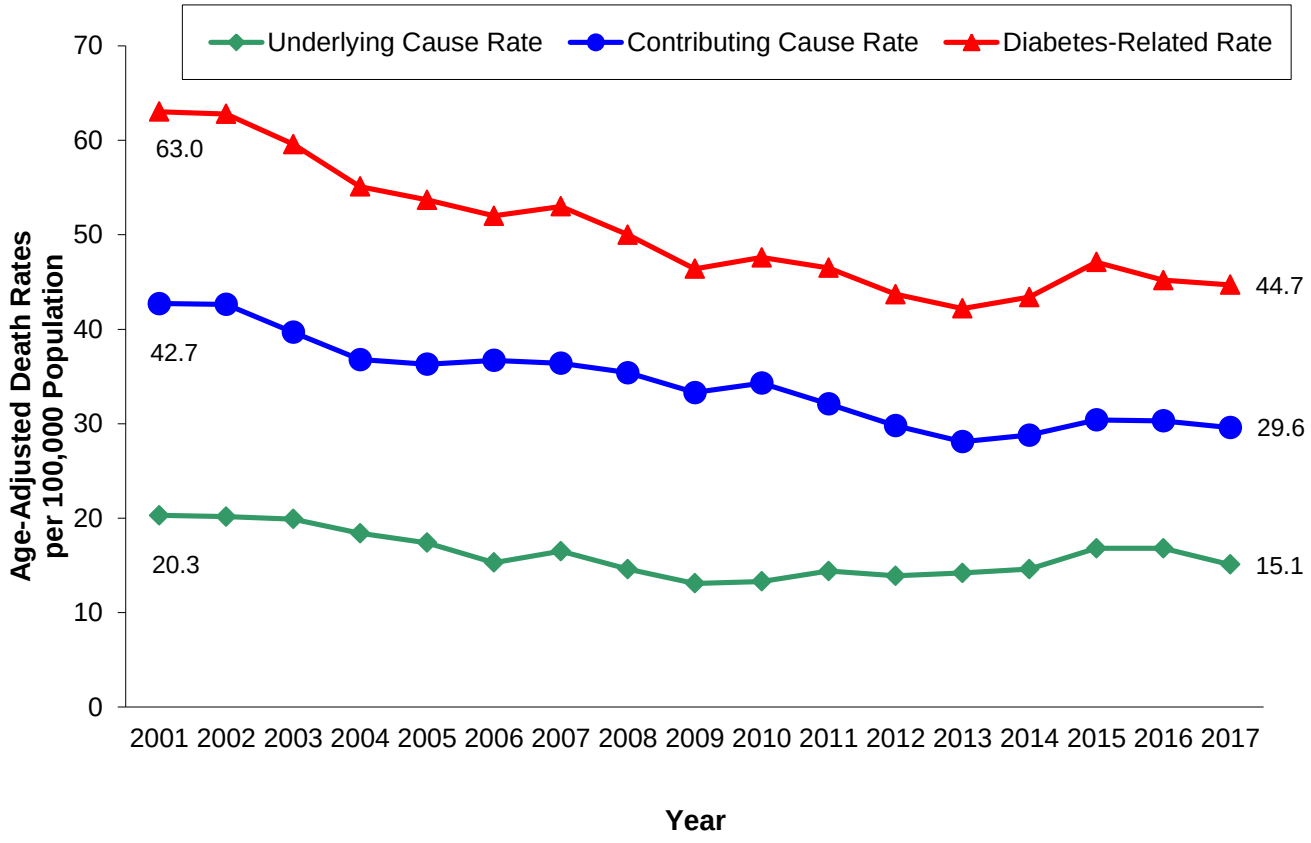
1. Rates are per 100,000 age-adjusted to the 2000 U.S. standard population

Figure 15. Age Distribution of Diabetes Deaths, Massachusetts: 2017



Note: The ICD-10 codes used for diabetes deaths were E10-E14.

Figure 16. Diabetes Death Rates, Massachusetts: 2001-2017



Note: The ICD-10 codes used for diabetes deaths were E10-E14.

Note: Rates are per 100,000 age-adjusted to the 2000 U.S. standard population.

Table 18. Injury Deaths by Leading Causes, Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2017

	All Injury Deaths[1]		Poisoning[2]		Falls		Hanging, Strangulation, or Suffocation		Motor Vehicle-Related[3]		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]
All Persons	**4,900**	**66.4**	**2,321**	**33.8**	**862**	**9.6**	**511**	**6.8**	**423**	**5.7**	**265**	**3.7**	**513**	**6.7**
< 1	4	-[6]	0	0.0	0	0.0	4	-[6]	0	0.0	0	0.0	1	--[6]
1-14	29	2.7	0	0.0	1	-[6]	5	0.5	10	0.9	2	-[6]	19	1.8
15-24	390	39.8	156	15.9	12	1.2	47	4.8	76	7.8	60	6.1	36	3.8
25-44	1,712	95.1	1,195	66.4	27	1.5	156	8.7	123	6.8	103	5.7	99	5.6
45-64	1,461	77.4	882	46.7	94	5.0	152	8.1	130	6.9	64	3.4	138	7.3
65-74	341	53.0	68	10.6	101	15.7	49	7.6	37	5.7	13	2.0	69	11.3
75-84	324	105.1	14	4.5	183	59.4	35	11.4	33	10.7	13	4.2	54	17.8
85+	639	394.6	6	3.7	444	274.2	63	38.9	14	8.6	10	6.2	96	60.5
All Females	**1,521**	**36.4**	**604**	**17.0**	**415**	**7.3**	**156**	**3.9**	**125**	**3.2**	**24**	**0.6**	**185**	**4.0**
< 1	1	-[6]	0	0.0	0	0.0	1	-[6]	0	0.0	0	0.0	1	--[6]
1-14	6	1.1	0	0.0	1	-[6]	0	0.0	3	-[6]	0	0.0	6	1.2
15-24	85	17.4	36	7.4	3	-[6]	12	2.5	22	4.5	7	1.4	7	1.5
25-44	399	44.0	280	30.9	4	-[6]	50	5.5	26	2.9	8	0.9	17	1.9
45-64	404	41.4	256	26.2	23	2.4	36	3.7	39	4.0	7	0.7	43	4.4
65-74	123	35.6	19	5.5	44	12.7	17	4.9	14	4.0	2	-[6]	17	5.2
75-84	139	78.2	8	4.5	76	42.7	14	7.9	15	8.4	0	0.0	25	14.3
85+	364	336.4	5	4.6	264	244.0	26	24.0	6	5.5	0	0.0	69	64.6
All Males	**3,379**	**98.6**	**1,717**	**51.1**	**447**	**12.8**	**355**	**10.2**	**298**	**8.5**	**241**	**7.0**	**328**	**9.5**
< 1	3	-[6]	0	0.0	0	0.0	3	-[6]	0	0.0	0	0.0	0	0.0
1-14	23	4.2	0	0.0	0	0.0	5	0.9	7	1.3	2	-[6]	13	2.4
15-24	305	62.1	120	24.4	9	1.8	35	7.1	54	11.0	53	10.8	29	6.1
25-44	1,313	146.7	915	102.3	23	2.6	106	11.8	97	10.8	95	10.6	82	9.3
45-64	1,057	116.0	626	68.7	71	7.8	116	12.7	91	10.0	57	6.3	95	10.5
65-74	218	73.1	49	16.4	57	19.1	32	10.7	23	7.7	11	3.7	52	18.3
75-84	185	141.9	6	4.6	107	82.1	21	16.1	18	13.8	13	10.0	29	22.7
85+	275	511.9	1	-[6]	180	335.1	37	68.9	8	14.9	10	18.6	27	51.9

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes drug overdoses, which account for the largest percentage. 3. Motor vehicle deaths to occupants, pedestrians, motorcyclists and bicyclists. 4. All remaining injury causes. 5. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 6. Calculations based on values 1-4 are excluded.

Table 19. Injury Deaths by Leading Causes, Gender and Race and Hispanic Ethnicity: Numbers and Age Adjusted Rates, Massachusetts: 2017

	All Injury Deaths[1]		Poisoning[2]		Falls		Hanging, Strangulation, or Suffocation		Motor Vehicle-Related[3]		Firearm		Other[4]	
	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]	Number	Rate[5]
White non-Hispanic	**3,975**	**71.5**	**1,857**	**38.2**	**804**	**10.3**	**420**	**7.5**	**323**	**5.9**	**156**	**2.9**	**415**	**6.6**
Females	1,324	41.0	514	20.3	392	7.8	129	4.2	102	3.5	15	0.5	172	4.8
Males	2,651	104.0	1,343	56.5	412	13.8	291	11.2	221	8.4	141	5.4	243	8.7
Black non-Hispanic	**276**	**54.5**	**135**	**25.9**	**14**	**3.6**	**15**	**3.0**	**19**	**3.8**	**58**	**10.8**	**35**	**7.5**
Females	63	23.9	35	12.7	8	3.5	3	-[6]	4	-[6]	3	-[6]	10	4.2
Males	213	86.9	100	40.0	6	3.4	12	5.6	15	6.6	55	20.7	25	10.6
Asian non-Hispanic	**87**	**21.9**	**19**	**3.6**	**20**	**6.5**	**19**	**5.2**	**13**	**3.0**	**5**	**0.9**	**11**	**2.7**
Females	26	12.6	2	-[6]	9	4.9	8	3.3	3	-[6]	2	-[6]	2	1.3
Males	61	32.9	17	6.3	11	8.7	11	7.7	10	4.9	3	1-[6]	9	4.3
Hispanic	**478**	**63.1**	**272**	**35.6**	**19**	**3.7**	**49**	**6.7**	**53**	**6.2**	**40**	**4.6**	**45**	**6.2**
Females	87	23.1	44	10.9	5	2.0	14	3.5	11	2.6	3	-[6]	10	3.2
Males	391	105.6	228	61.9	14	5.8	35	10.4	42	9.9	37	8.5	35	9.1

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes drug overdoses, which account for the largest percentage. 3. Motor vehicle deaths to occupants, pedestrians, motorcyclists and bicyclists. 4. All remaining injury causes. 5. Number of deaths per 100,000 persons in each group; rates are age-adjusted to the 2000 US standard population. 6. Calculations based on values 1-4 are excluded.

Table 20. Unintentional Injury Deaths by Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2017

	All Unintentional[1]		Poisonings		Falls		Motor Vehicle-Related	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**3,913**	**52.6**	**2,179**	**31.9**	**838**	**9.3**	**423**	**5.7**
<1	4	-[3]	0	0.0	0	0.0	0	0.0
1-14	20	1.9	0	0.0	1	-[3]	10	0.9
15-24	254	25.9	147	15.0	8	0.8	76	7.8
25-44	1342	74.5	1154	64.1	15	0.8	123	6.8
45-64	1139	60.4	810	42.9	89	4.7	130	6.9
65-74	272	42.2	53	8.2	100	15.5	37	5.7
75-84	283	91.8	10	3.2	183	59.4	33	10.7
85+	599	369.9	5	3.1	442	272.9	14	8.6
All Females	**1269**	**29.6**	**544**	**15.5**	**409**	**7.1**	**125**	**3.2**
<1	1	-[3]	0	0.0	0	0.0	0	0.0
1-14	5	1.0	0	0.0	1	-[3]	3	-[3]
15-24	60	12.3	32	6.6	1	-[3]	22	4.5
25-44	304	33.6	265	29.3	1	-[3]	26	2.9
45-64	322	33.0	224	23.0	22	2.3	39	4.0
65-74	100	28.9	11	3.2	44	12.7	14	4.0
75-84	125	70.3	7	3.9	76	42.7	15	8.4
85+	352	325.3	5	4.6	264	244.0	6	5.5
All Males	**2,644**	**77.4**	**1635**	**48.8**	**429**	**12.3**	**298**	**8.5**
<1	3	-[3]	0	0.0	0	0.0	0	0.0
1-14	15	2.7	0	0.0	0	0.0	7	1.3
15-24	194	39.5	115	23.4	7	1.4	54	11.0
25-44	1038	116.0	889	99.4	14	1.6	97	10.8
45-64	817	89.7	586	64.3	67	7.4	91	10.0
65-74	172	57.7	42	14.1	56	18.8	23	7.7
75-84	158	121.2	3	-[3]	107	82.1	18	13.8
85+	247	459.8	0	0.0	178	331.4	8	14.9

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.
2. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded.

Table 21. Unintentional Injury Deaths by Gender and Race and Hispanic Ethnicity: Numbers and Age-Adjusted Rates, Massachusetts: 2017

	All Unintentional[1]		Poisonings		Falls		Motor Vehicle-Related	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
	3,244	**57.7**	**1735**	**36.1**	**785**	**10.0**	**323**	**5.9**
White non-Hispanic								
Females	1,120	33.7	462	18.6	387	7.6	102	3.5
Males	2,124	83.5	1273	53.9	398	13.2	221	8.4
Black non-Hispanic	**183**	**36.8**	**129**	**24.9**	**14**	**3.6**	**19**	**3.8**
Females	51	19.4	32	11.7	8	3.5	4	-[3]
Males	132	56	97	39.0	6	3.4	15	6.6
Asian non-Hispanic	**58**	**15.7**	**15**	**2.9**	**18**	**6.0**	**13**	**3.0**
Females	18	10.1	2	-[3]	8	4.6	3	-[3]
Males	40	22.1	13	4.8	10	7.8	10	4.9
Hispanic	**365**	**49**	**266**	**34.9**	**17**	**3.5**	**53**	**6.2**
Females	64	17.3	40	10.1	5	2.0	11	2.6
Males	301	82.5	226	61.2	12	5.5	42	9.9

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.
2. Number of deaths per 100,000 persons in each group; rates are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded.

Table 22. Intentional Injury Deaths by Gender, Age: Numbers, Age-Adjusted, and Age-Specific Rates, Massachusetts: 2017

	All Intentional[1]		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
All Persons	**872**	**12.3**	**692**	**9.5**	**180**	**2.7**
<1	0	0.0	0	0.0	0	0.0
1-14	7	0.7	6	0.6	1	-[3]
15-24	131	13.4	81	8.3	50	5.1
25-44	342	19.0	249	13.8	93	5.2
45-64	285	15.1	259	13.7	26	1.4
65-74	55	8.5	51	7.9	4	-[3]
75-84	27	8.8	24	7.8	3	-[3]
85+	25	15.4	22	13.6	3	-[3]
All Females	**199**	**5.5**	**163**	**4.4**	**36**	**1.1**
<1	0	0.0	0	0.0	0	0.0
1-14	0	0.0	0	0.0	0	0.0
15-24	23	4.7	19	3.9	4	-[3]
25-44	84	9.3	62	6.8	22	2.4
45-64	69	7.1	65	6.7	4	-[3]
65-74	15	4.3	12	3.5	3	-[3]
75-84	5	2.8	3	-[3]	2	-[3]
85+	3	-[3]	2	-[3]	1	-[3]
All Males	**673**	**19.5**	**529**	**15.1**	**144**	**4.4**
<1	0	0.0	0	0.0	0	0.0
1-14	7	1.3	6	1.1	1	N
15-24	108	22.0	62	12.6	46	9.4
25-44	258	28.8	187	20.9	71	7.9
45-64	216	23.7	194	21.3	22	2.4
65-74	40	13.4	39	13.1	1	-[3]
75-84	22	16.9	21	16.1	1	-[3]
85+	22	41.0	20	37.2	2	-[3]

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.
2. Number of deaths per 100,000 persons in each age group; rates for all rows except the age group rows are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded.

Table 23. Intentional Injury Deaths by Gender and Race and Hispanic Ethnicity: Numbers and Age-Adjusted Rates, Massachusetts: 2017

	All Intentional[1]		Suicide		Homicide	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
White non-Hispanic	**639**	**12.2**	**581**	**11.0**	**58**	**1.2**
Females	163	6.2	143	5.3	20	0.8
Males	476	18.7	438	17.1	38	1.6
Black non-Hispanic	**82**	**15.3**	**21**	**3.8**	**61**	**11.6**
Females	7	2.4	3	-[3]	4	-[3]
Males	75	28.5	18	6.7	57	21.8
Asian non-Hispanic	**28**	**6.1**	**25**	**5.5**	**3**	-[3]
Females	8	2.6	7	2.3	1	-[3]
Males	20	10.5	18	9.7	2	-[3]
Hispanic	**104**	**12.7**	**53**	**6.8**	**51**	**5.9**
Females	18	4.3	9	2.0	9	2.3
Males	86	21.9	44	12.5	42	9.4

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table.
2. Number of deaths per 100,000 persons in each group; rates are age-adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded.

Table 24. Injury Deaths by Intent, Method and Gender: Numbers and Age-Adjusted Rates, Massachusetts: 2017

Type of Injury[1]	All Injury Deaths		Female		Male	
	Number	Rate[2]	Number	Rate[2]	Number	Rate[2]
Unintentional Injuries (Accidents)	**3,913**	**52.6**	**1,269**	**29.6**	**2,644**	**77.4**
Motor vehicle-related	423	5.7	125	3.2	298	8.5
Injury to pedestrian	88	1.1	38	1	50	1.3
Injury to pedal cyclist	6	0.1	0	0	6	0.2
Injury to motorcyclist	52	0.7	0	0	52	1.5
Injury to occupant	45	0.6	12	0.3	33	1
Other and unspecified	232	3.2	75	1.9	157	4.5
Poisoning	2179	31.9	544	15.5	1635	48.8
Falls	838	9.3	409	7.1	429	12.3
Hanging, strangulation or suffocation	159	1.8	69	1.3	90	2.5
Cut or pierce	1	-[3]	0	0	1	-[3]
Firearm	2	-[3]	0	0	2	-[3]
Drowning and submersion	42	0.6	6	0.2	36	1.0
Smoke, fire and flames	40	0.5	19	0.4	21	0.6
Other and unspecified	192	2.2	89	1.7	103	2.8
Suicide	**692**	**9.5**	**163**	**4.4**	**529**	**15.1**
Poisoning	120	1.6	49	1.2	71	2.0
Hanging, strangulation or suffocation	342	4.9	80	2.3	262	7.6
Firearm	153	2.0	14	0.3	139	4.0
Other and unspecified	77	1.0	20	0.5	57	1.6
Homicide	**180**	**2.7**	**36**	**1.1**	**144**	**4.4**
Firearm	105	1.6	10	0.3	95	2.9
Cut or pierce	38	0.6	11	0.4	27	0.8
Other and unspecified	37	0.5	15	0.4	22	0.6
Injury Deaths of Undetermined Intent	**51**	**0.7**	**21**	**0.6**	**30**	**0.9**
Poisoning	22	0.3	11	0.3	11	0.3
Other and unspecified	29	0.4	10	0.3	19	0.6
Legal Intervention	**5**	**0.1**	**1**	-[3]	**4**	-[3]
Firearm	4	-[3]	0	0	4	-[3]
Other and unspecified	1	-[3]	1	-[3]	0	0
Adverse Effects	**59**	**0.7**	**31**	**0.7**	**28**	**0.8**
Medical care	52	0.6	28	0.6	24	0.6
Drugs	7	0.1	3	-[3]	4	-[3]
ALL INJURIES	**4,900**	**66.4**	**1,521**	**36.4**	**3,379**	**98.6**

1. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Number of deaths per 100,000 persons; rates are adjusted to the 2000 US standard population. 3. Calculations based on values 1-4 are excluded.

Table 25. HIV/AIDS[1] Deaths by Place of Occurrence, Massachusetts: 2001-2017

Year		Total[2]	Place of Occurrence			
			At Home	Hospital	Out of State	Hospice/Nursing Home/Other
2001	#	249	47	164	4	34
	%	100.0	18.9	65.9	--[3]	13.7
2002	#	229	33	156	4	36
	%	100.0	14.4	68.1	--[3]	15.7
2003	#	226	55	134	5	32
	%	100.0	24.3	59.3	2.2	14.2
2004	#	211	45	134	1	31
	%	100.0	21.3	63.5	--[3]	14.7
2005	#	180	28	122	1	30
	%	100.0	15.6	67.8	--[3]	16.7
2006	#	179	22	122	2	33
	%	100.0	12.3	68.2	--[3]	18.4
2007	#	143	15	98	2	28
	%	100.0	10.5	68.5	--[3]	19.6
2008	#	143	27	92	1	23
	%	100.0	18.9	64.3	--[3]	16.1
2009	#	124	25	76	1	22
	%	100.0	20.2	61.3	--[3]	17.7
2010	#	119	22	68	1	28
	%	100.0	18.5	57.1	--[3]	23.5
2011	#	91	14	58	0	19
	%	100.0	15.4	63.7	0.0	20.9
2012	#	100	24	56	0	20
	%	100.0	24.0	56.0	0.0	20.0
2013	#	86	13	53	0	20
	%	100.00	15.1	61.6	0.0	23.3
2014	#	80	13	50	0	17
	%	100.00	16.3	62.5	0.0	21.3
2015	#	92	26	42	0	24
	%	100.00	28.3	45.7	0.0	26.1
2016	#	75	11	44	0	20
	%	100.00	14.7	58.7	0.0	26.7
2017	#	79	19	45	0	15
	%	100.00	24.1	57.0	0.0	19.0

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. 2. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths were coded according to ICD-10: B20-B24. 2. Calculations based on values 1-4 are excluded.

Table 26. HIV/AIDS[1] Deaths[2] by Age, Massachusetts: 2001-2017

Year		Age (in years)						
		<15	15-24	25-34	35-44	45-54	55-64	65+
2001	#	1	2	25	111	91	16	3
	%	-[3]	-[3]	10.0	44.6	36.5	6.4	-[3]
2002	#	1	1	10	91	92	26	8
	%	-[3]	-[3]	4.4	39.7	40.2	11.4	3.5
2003	#	1	3	14	94	83	22	9
	%	-[3]	-[3]	6.2	41.6	36.6	9.7	4.0
2004	#	0	2	9	79	93	22	6
	%	0.0	-[3]	4.3	37.4	44.1	10.4	2.8
2005	#	0	1	6	64	76	25	8
	%	0.0	-[3]	3.3	35.6	42.2	13.9	4.4
2006	#	0	1	6	71	73	22	6
	%	0.0	-[3]	3.4	39.7	40.8	12.3	3.4
2007	#	0	0	5	34	68	31	5
	%	0.0	0.0	3.5	32.7	47.6	21.7	3.5
2008	#	0	1	6	32	54	34	16
	%	0.0	-[3]	4.2	22.4	37.8	23.8	11.2
2009	#	0	0	6	25	52	32	9
	%	0.0	0.0	4.8	20.2	41.9	25.8	7.3
2010	#	0	1	4	24	47	38	5
	%	0.0	-[3]	-[3]	20.2	39.5	31.9	4.2
2011	#	0	2	1	19	37	21	11
	%	0.0	-[3]	-[3]	20.9	40.7	23.1	12.1
2012	#	0	0	2	16	40	33	9
	%	0.0	0.0	-[3]	16.0	40.0	33.0	9.0
2013	#	0	2	3	3	28	39	11
	%	0.0	-[3]	-[3]	-[3]	32.6	45.3	12.8
2014	#	0	1	6	9	23	33	8
	%	0.0	-[3]	7.5	11.3	28.8	41.3	10.0
2015	#	0	0	4	7	29	31	21
	%	0.0	0.0	-[3]	7.6	31.5	33.7	22.8
2016	#	0	0	2	5	26	25	17
	%	0.0	0.0	-[3]	6.7	34.7	33.3	22.7
2017	#	0	1	2	5	15	28	28
	%	0.0	-[3]	-[3]	6.3	19.0	35.4	35.4

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. 2. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths were coded according to ICD-10: B20-B24. 2. Calculations based on values 1-4 are excluded.

Table 27. HIV/AIDS[1] Deaths[2] by Gender, Race and Hispanic Ethnicity, Massachusetts: 2001-2017

Year		Gender		Race and Ethnicity			
		Male	Female	White non-Hispanic[3]	Black non-Hispanic[3]	Other[4]	Hispanic[3]
2001	#	182	67	125	73	0	51
	%	73.1	26.9	50.2	29.3	0.0	20.5
2002	#	163	66	108	68	1	52
	%	71.2	28.8	47.1	29.7	--[5]	22.7
2003	#	150	76	113	58	2	53
	%	66.4	33.6	50.0	25.7	--[5]	23.5
2004	#	151	60	976	55	4	55
	%	71.6	28.4	46.0	26.1	--[5]	26.1
2005	#	122	58	75	56	4	45
	%	67.8	32.2	41.7	31.1	--[5]	25.0
2006	#	122	57	91	49	2	37
	%	68.2	31.8	50.8	27.4	--[5]	20.7
2007	#	96	47	58	48	0	37
	%	67.4	32.9	40.6	33.6	0.0	25.9
2008	#	101	42	69	37	5	31
	%	70.6	29.4	48.6	26.1	3.5	21.8
2009	#	89	35	48	37	6	33
	%	71.8	28.2	38.7	29.8	4.8	26.6
2010	#	80	39	58	34	1	26
	%	67.2	32.8	48.7	28.6	--[5]	21.8
2011	#	64	27	36	30	1	24
	%	70.3	29.7	39.6	33.0	--[5]	26.4
2012	#	62	38	50	26	1	23
	%	62.0	38.0	50.0	26.0	--[5]	23.0
2013	#	58	28	35	32	0	18
	%	67.4	32.6	41.2	37.6	0.0	21.2
2014	#	59	21	41	21	1	16
	%	73.8	26.3	51.3	26.3	--[5]	20.0
2015	#	74	18	41	28	2	21
	%	80.4	19.6	44.6	30.4	--[5]	22.8
2016	#	49	26	36	23	5	11
	%	65.3	34.7	48.0	30.7	6.7	14.7
2017	#	49	30	31	16	2	30
	%	62.0	38.0	39.2	20.3	--[5]	38.0

1. AIDS: Acquired Immune Deficiency Syndrome, HIV: Human Immunodeficiency Virus. 2. The deaths reported are cases for which AIDS or HIV-related disease was the underlying cause of death. Deaths were coded according to ICD-10: B20-B24. 3. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation. 4. The "Other" category represents Asian non-Hispanics, American Indian non-Hispanics, and other non-Hispanics. 5. Calculations based on values 1-4 are excluded.

Table 28. HIV/AIDS[1] Deaths by Gender, Race and Hispanic Ethnicity: Numbers, Percent and Age-Adjusted Rates, Massachusetts: 2004-2017

	White non-Hispanic[2]			Black non-Hispanic[2]			Hispanic[2]		
Year	**#**	**Percent**	**Rate[3]**	**#**	**Percent**	**Rate[3]**	**#**	**Percent**	**Rate[3]**
2004	97	46%	1.7	55	26%	15.8	55	26%	13.9
2005	75	42%	1.3	56	31%	16.0	45	25%	11.5
2006	91	51%	1.6	49	27%	13.7	37	21%	8.4
2007	58	41%	1.0	48	34%	13.0	37	26%	8.9
2008	69	50%	1.2	37	27%	10.6	31	23%	8.3
2009	48	41%	0.5	37	31%	15.2	33	28%	11.6
2010	58	49%	0.5	34	29%	15.2	26	22%	11.6
2011	36	40%	0.6	30	33%	6.9	24	27%	4.7
2012	50	51%	0.8	26	26%	6.1	23	23%	4.6
2013	35	41%	0.5	32	38%	6.7	18	21%	3.2
2014	41	51%	0.6	21	26%	4.4	16	20%	3.2
2015	41	46%	0.6	28	31%	5.9	21	23%	3.6
2016	36	51%	0.5	23	33%	4.7	11	16%	1.8
2017	31	41%	0.4	16	21%	3.8	30	39%	1.9
MALE									
2004	74	49%	2.7	39	26%	24.0	34	23%	18.4
2005	52	43%	1.9	34	28%	20.9	33	27%	18.4
2006	67	55%	2.4	33	27%	20.0	21	17%	9.8
2007	48	50%	1.7	23	24%	13.4	25	26%	13.3
2008	55	56%	1.9	25	26%	16.0	18	18%	11.0
2009	32	38%	1.1	29	34%	15.6	24	28%	12.4
2010	40	51%	1.1	20	25%	15.6	19	24%	12.4
2011	30	48%	1.1	14	22%	6.6	19	30%	8.2
2012	35	57%	1.2	14	23%	7.8	12	20%	5.6
2013	24	69%	0.7	21	21%	9.8	12	12%	4.3
2014	34	59%	1.0	14	24%	6.5	10	17%	4.7
2015	33	45%	1.0	23	32%	10.3	17	23%	6.4
2016	28	61%	0.9	12	26%	5.7	6	13%	2.2
2017	22	45%	0.7	12	24%	8.8	15	31%	6.6
FEMALE									
2004	23	38%	0.8	16	27%	8.7	21	35%	10.0
2005	23	40%	0.8	22	38%	11.8	12	21%	5.4
2006	24	42%	0.9	16	28%	8.3	16	28%	7.1
2007	10	21%	0.3	25	53%	12.8	12	26%	5.2
2008	14	36%	0.5	12	31%	6.4	13	33%	6.4
2009	16	48%	0.5	8	24%	3.8	9	27%	3.8
2010	18	46%	0.5	14	36%	3.8	7	18%	3.8
2011	6	22%	0.2	16	59%	7.1	5	19%	1.6
2012	15	39%	0.4	12	32%	4.9	11	29%	3.9
2013	11	11%	0.3	11	11%	4.4	6	6%	2.1
2014	7	35%	0.2	7	35%	2.7	6	30%	2.0
2015	8	47%	0.3	5	29%	2.1	4	--[4]	--[4]
2016	8	33%	0.2	11	46%	4.0	5	21%	1.5
2017	9	32%	0.2	4	14%	--[4]	15	54%	2.3

1. AIDS and HIV disease deaths coded using ICD-10: B20-B24. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation. 3. Number of deaths per 100,000 persons; rates are age-adjusted to the 2000 US standard population. 4. Calculations based on values 1-4 are excluded

Table 29. HIV/AIDS[1] Deaths by Race, Hispanic Ethnicity, and Gender of Persons Ages 25-44, Massachusetts: 2004-2017

	White non-Hispanic[2]		Black non-Hispanic[2]		Hispanic[2]	
Year	#	Rate[3]	#	Rate[3]	#	Rate[3]
2004	38	2.6	17	14.0	31	18.0
2005	29	2.0	22	18.2	19	10.7
2006	35	2.5	17	14.2	23	12.9
2007	16	1.2	11	9.1	12	6.6
2008	19	1.4	9	7.4	8	4.3
2009	11	0.8	7	5.7	12	6.3
2010	9	0.7	6	4.7	12	6.1
2011	6	0.5	7	5.4	7	3.4
2012	6	0.5	3	--[4]	9	4.4
2013	1	--[4]	3	--[4]	2	--[4]
2014	1	--[4]	9	6.4	5	2.2
2015	2	--[4]	6	4.2	3	--[4]
2016	2	--[4]	2	--[4]	2	--[4]
2017	1	--[4]	1	--[4]	3	--[4]
MALE						
2004	30	4.1	11	18.9	19	22.1
2005	21	2.9	12	20.4	11	12.3
2006	22	3.2	12	20.5	12	13.3
2007	16	2.4	5	8.5	9	9.7
2008	13	2.0	3	--[4]	6	6.2
2009	8	1.2	4	--[4]	5	5.5
2010	3	--[4]	3	--[4]	3	--[4]
2011	4	--[4]	4	--[4]	3	--[4]
2012	5	0.8	1	--[4]	5	4.8
2013	1	--[4]	2	--[4]	1	--[4]
2014	1	--[4]	6	8.8	3	--[4]
2015	1	--[4]	4	--[4]	1	--[4]
2016	1	--[4]	2	--[4]	2	--[4]
2017	0	--[4]	1	--[4]	2	--[4]
FEMALE						
2004	8	1.1	6	9.6	12	13.9
2005	8	1.1	10	16.0	8	9.0
2006	13	1.8	5	8.2	11	12.5
2007	0	0.0	6	9.8	3	--[4]
2008	6	0.9	6	9.8	2	--[4]
2009	3	--[4]	3	--[4]	7	7.0
2010	6	0.9	3	--[4]	9	9.3
2011	2	--[4]	3	--[4]	4	--[4]
2012	1	--[4]	2	--[4]	4	--[4]
2013	0	0.0	1	--[4]	1	--[4]
2014	0	0.0	3	--[4]	2	--[4]
2015	1	--[4]	2	--[4]	2	--[4]
2016	1	--[4]	0	0.0	0	0.0
2017	1	--[4]	0	0.0	1	0.0

1. AIDS and HIV disease deaths coded using ICD-10: B20-B24. 2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation. 3. Number of deaths per 100,000 residents in the specified population group. 4. Calculations based on values 1-4 are excluded.

Table 30. Trends in Infant, Neonatal, and Post Neonatal Mortality, by Race and Hispanic Ethnicity, Massachusetts: 2007-2017

INFANT MORTALITY (less than one year of age)

	State Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian non-Hispanic		Other[2]	
Year	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]
2007	380	4.9	206	3.9	66	10.2	81	7.4	18	3.1	4	--[4]
2008	381	5.0	192	3.7	79	11.9	86	7.9	16	2.7	8	5.1
2009	366	4.9	205	4.1	54	7.8	78	7.1	20	3.4	9	7.8
2010	319	4.4	163	3.4	56	8.2	65	6.1	25	4.3	7	4.4
2011	310	4.2	158	3.4	47	6.7	75	5.8	22	3.6	6	4.2
2012	309	4.3	158	3.5	57	8.2	71	5.4	17	2.6	4	--[4]
2013	298	4.2	161	3.6	63	8.9	49	3.9	15	2.4	3	--[4]
2014	321	4.5	169	3.8	54	7.6	62	5.0	20	3.2	8	10.5
2015	310	4.3	146	3.3	59	8.3	75	5.7	15	2.3	14	21.8
2016	283	4.0	119	2.8	56	7.7	78	5.8	18	2.7	10	13.7
2017	263	3.7	109	2.6	49	6.6	71	5.1	19	2.9	12	17.1

NEONATAL MORTALITY (birth to 27 days)

	State Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian, non-Hispanic		Other[2]	
Year	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]
2007	263	3.4	141	2.7	48	7.4	53	4.9	15	2.6	4	--[4]
2008	290	3.8	152	2.9	57	8.6	65	6.0	10	1.7	6	3.8
2009	276	3.7	162	3.2	36	5.2	54	4.9	17	2.9	7	6.0
2010	238	3.3	121	2.5	43	6.3	47	4.4	20	3.4	5	4.6
2011	230	3.1	111	2.4	33	4.7	60	4.7	19	3.1	3	--[4]
2012	216	3.0	111	2.5	41	5.9	46	3.5	13	2.0	3	--[4]
2013	221	3.1	119	2.6	45	6.3	39	3.1	10	1.6	0	0.0
2014	236	3.3	122	2.7	38	5.3	50	3.9	15	2.3	6	9.5
2015	237	3.3	106	2.4	45	6.4	59	4.5	15	2.3	11	17.1
2016	214	3.0	87	2.0	47	6.5	64	4.8	9	1.3	5	6.8
2017	180	2.5	70	1.7	32	4.3	52	3.7	11	1.7	12	17.1

POST NEONATAL MORTALITY (28-365 days)

	State Total[1]		White non-Hispanic		Black non-Hispanic		Hispanic		Asian non-Hispanic		Other[2]	
Year	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]	#	Rate[3]
2007	117	1.5	65	1.2	18	2.8	28	2.6	3	--[4]	0	0.0
2008	91	1.2	40	0.8	22	3.3	21	1.9	6	1.0	2	--[4]
2009	90	1.2	43	0.9	18	2.6	24	2.2	3	--[4]	2	--[4]
2010	81	1.1	42	0.9	13	1.9	18	1.7	5	0.9	2	--[4]
2011	80	1.1	47	1.0	14	2.0	15	1.2	3	--[4]	3	--[4]
2012	93	1.3	47	1.0	16	2.3	25	1.9	4	--[4]	1	--[4]
2013	77	1.1	42	0.9	18	2.5	10	0.8	5	0.8	1	--[4]
2014	85	1.2	47	1.1	16	2.2	12	0.9	5	0.8	2	--[4]
2015	73	1.0	40	0.9	14	2.0	16	1.2	0	0.0	3	--[4]
2016	69	1.0	32	0.7	9	1.2	14	1.0	9	1.3	5	6.8
2017	83	1.2	39	0.9	17	2.3	19	1.4	8	1.2	0	0.0

1. Deaths of infants of unknown race are included in the total calculation. For rate computations, births of infants of unknown race are allocated into the race categories according to the distribution of births of known race. 2. Other: American Indian and Other races. 3. Rates are expressed per 1,000 live births. 4. Calculations based on values 1-4 are excluded.

Table 31. Infant, Neonatal, and Post Neonatal Deaths by Cause, Massachusetts: 2017

Cause of Death[1]	ICD-10 Code	Infant (<1 year) #	Infant (<1 year) %	Neonatal (<28 days) #	Neonatal (<28 days) %	Post Neonatal (28-365 days) #	Post Neonatal (28-365 days) %
TOTAL		**263**	**100.0**	**180**	**100.0**	**83**	**100.0**
Infectious and parasitic diseases	**A00-B99**	**8**	**3.0**	**1**	--[2]	**7**	**8.4**
Cancer	**C00-C97**	**2**	--[2]	**0**	**0.0**	**2**	--[2]
Diseases of the blood and blood forming organs (anemia)	**D50-D89**	**1**	--[2]	**1**	--[2]	**0**	**0.0**
Diseases of nervous system and ear	**G00-G98, H60-H93**	**4**	--[2]	**3**	--[2]	**1**	--[2]
Diseases of the respiratory system	**J00-J98**	**3**	--[2]	**0**	**0.0**	**3**	--[2]
Diseases of digestive system	**K00-K92**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
Congenital malformations	**Q00-Q99**	**54**	**20.5**	**38**	**21.1**	**16**	**19.3**
Congenital malformations of nervous system	Q00-Q07	6	2.3	5	2.8	1	--[2]
Anencephalus and similar malformations	Q00	3	--[2]	3	--[2]	0	0.0
Congenital malformations of heart	Q20-Q24	11	4.2	5	2.8	6	7.2
Other congenital malformations of circulatory system	Q25-Q28	1	--[2]	0	0.0	1	--[2]
Congenital malformations of respiratory system	Q30-Q34	9	3.4	9	5.0	0	0.0
Congenital malformations of genitourinary system	Q50-Q64	6	2.3	6	3.3	0	0.0
Congenital malformations of musculoskeletal system	Q65-Q85	7	2.7	4	--[2]	3	--[2]
Chromosomal abnormalities	Q90-Q99	9	3.4	6	3.3	3	--[2]
Certain conditions originating in the perinatal period	**P00-P96**	**136**	**51.7**	**130**	**72.2**	**6**	**7.2**
Newborn affected by maternal conditions which may be unrelated to present pregnancy	P00	2	--[2]	2	--[2]	0	0.0
Newborn affected by maternal complications of pregnancy	P01	14	5.3	14	7.8	0	0.0
Newborn affected by complications of placenta, cord and membrane	P02	11	4.2	11	6.1	0	0.0
Newborn affected by other complications of labor and delivery	P03	0	0.0	0	0.0	0	0.0
Disorders relating to short gestation and low birthweight	P07	44	16.7	43	23.9	1	--[2]
Intrauterine hypoxia and birth asphyxia	P20-P21	13	4.9	13	7.2	0	0.0
Respiratory distress of newborn	P22	8	3.0	8	4.4	0	0.0
Other respiratory conditions of newborn	P23-P28	7	2.7	7	3.9	0	0.0
Infections specific to the perinatal period	P35-P39	9	3.4	6	3.3	3	--[2]
Neonatal hemorrhage	P50-P52, P54	8	3.0	7	3.9	1	--[2]
Other and ill-defined conditions originating in the perinatal period	P90-P96	4	--[2]	4	--[2]	0	0.0
Symptoms, signs, and ill-defined conditions	**R00-R99**	**40**	**15.2**	**5**	2.8	**35**	**42.2**
Sudden Infant Death Syndrome (SIDS)	R95	24	9.1	3	--[2]	21	25.3
Unintentional injuries	**V01-X59**	**4**	--[2]	**0**	**0.0**	**4**	--[2]
Homicide	**X85-Y09**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
All other causes	**Residual**	**11**	**4.2**	**2**	--[2]	**9**	**10.8**

1. Please see Technical Notes in the Appendix for an explanation of ICD-10 codes. 2. Calculations based on values 1-4 are excluded.

Table 32. Infant[1] Deaths by Major Causes[2], Race and Hispanic Ethnicity, Massachusetts: 2017

		White non-Hispanic		Black non-Hispanic		Asian non-Hispanic		Hispanic	
Cause of Death[1]	**ICD-10 Code**	**#**	**%**	**#**	**%**	**#**	**%**	**#**	**%**
TOTAL		**109**	**100.0%**	**49**	**100.0%**	**19**	**100.0%**	**71**	**100.0%**
Certain conditions originating in the perinatal period	P00- P96	54	49.5%	27	55.1%	7	36.8%	40	56.3%
Congenital malformations	Q00-Q99	26	23.9%	6	12.2%	3	-[3]	15	21.1%
Symptoms, signs, and ill-defined conditions	R00-R99	17	15.6%	9	18.4%	3	-[3]	9	12.7%
SIDS	R95	12	11.0%	6	12.2%	2	-[3]	3	-[3]
Unintentional Injuries	V01-X59	2	-[3]	0	0.0%	1	-[3]	1	-[3]
Homicide	X85-Y09	0	0.0%	0	0.0%	0	0.0%	0	0.0%
All other causes	Residual	10	9.2%	7	14.3%	5	26.3%	6	8.5%

1. Deaths less than 1 year of age. 2. Deaths are coded according to ICD-10. 3. Calculations based on values 1-4 are excluded.

Table 33. Target Status for Selected Healthy People 2020 Mortality Objectives (underlying cause of death only)

HEALTHY PEOPLE 2020 OBJECTIVE	TARGET 2020[1]	MA 2010[2]	MA 2014[2]	MA 2015[2]	MA 2016[2]	MA 2017[2]	TARGET STATUS
Overall Cancer	161.4	171.0	155.6	152.8	149.8	149.1	√
Lung Cancer	45.5	47.3	40.7	39.0	37.3	35.2	√
Female Breast Cancer (per 100,000 females)	20.7	19.1	18.0	17.7	16.8	18.5	√
Uterine Cervical Cancer (per 100,000 females)	2.2	4.3	1.3	1.1	1.1	1.1	√
Colorectal Cancer	14.5	14.9	12.6	12.0	11.6	11.5	√
Oropharyngeal Cancer	2.3	3.0	2.3	2.4	2.1	2.4	**O**
Prostate Cancer (per 100,000 males)	21.8	21.2	18.8	17.9	18.6	18.1	√
Malignant Melanoma	2.4	3.1	3.6	3.1	3.1	3.1	●
COPD, Ages 45+	102.6	84.4	85.8	90.9	86.2	90.8	√
Coronary Heart Disease	103.4	96.5	82.4	80.8	76.9	74.5	√
Stroke	34.8	31.2	39.4	45.5	53.6	52.6	●
Cirrhosis	8.2	5.4	5.5	4.1	4.3	4.8	√
Drug-Induced Deaths	11.3	12.5	23.5	29.0	35.8	34.9	●
HIV/AIDS	3.3	1.6	0.7	1.1	0.9	0.9	√
Injury Deaths	53.7	43.3	51.6	58.0	66.2	66.4	**O**
Residential Fire Deaths	0.9	0.2	0.4	0.5	0.5	0.5	√
Falls	7.2	6.9	7.9	8.7	8.5	9.6	●
Falls, Ages 65+	47.0	48.1	52.2	59.4	57.5	65.3	●
Firearm-Related	9.3	4.0	3.1	3.0	3.4	3.7	√
Poisonings	13.2	12.5	23.6	28.4	35.4	33.8	●
Poisonings, Ages 35-54	25.6	22.8	30.5	46.5	58.1	58.4	●
Unintentional or Undetermined Intent Injuries	11.1	10.9	16.5	26.3	33.1	32.0	●
Unintentional or Undetermined Intent Injuries, Ages 35-54	21.6	20.0	30.7	46.5	58.1	58.4	●
Unintentional Injuries	36.4	28.3	39.4	45.5	53.6	52.6	●
Motor Vehicle Crashes	12.4	5.4	5.7	5.4	6.3	5.7	√
Drowning	1.1	1.2	1.0	1.0	1.2	0.9	√
Hanging, Strangulation or Suffocation	1.8	5.8	3.8	6.3	5.9	6.8	●
Homicide	5.5	3.2	2.3	2.2	2.1	2.7	√
Suicide	10.2	8.7	8.5	9.0	8.8	9.5	√
Infant and Child Health							
Infant Deaths (per 1,000 live births)	6.0	4.4	4.5	4.3	4.0	3.7	√
Neonatal Deaths (per 1,000 live births)	4.1	3.3	3.3	3.3	3.0	2.5	√
Post Neonatal Deaths (per 1,000 live births)	2.0	1.1	1.2	1.0	1.0	1.2	√
Birth Defects (per 1,000 live births)	1.3	0.7	0.7	0.5	0.7	0.8	√
Congenital Heart Defects (per 1,000 live births)	0.3	0.1	0.2	0.1	0.1	0.2	√
Sudden Infant Death Syndrome (SIDS) (per 1,000 live births)	0.5	0.5	0.3	0.3	0.2	0.3	√
Child/Adolescent/Young Adults Death Rates							
1-4 years old	26.5	13.6	14.7	16.7	14.2	15.4	√
5-9 years old	12.4	7.3	5.3	9.1	8.8	8.9	√
10-14 years old	14.8	8.6	6.8	9.1	10.4	10.7	√
15-19 years old	54.3	30.9	19.5	31.1	30.4	32.5	√
20-24 years old	88.3	65.2	40.9	76.1	77.7	67.9	√
Asthma Deaths (per million)							
Ages 35-64 Years	4.9	6.3	11.4	10.3	12.6	11.4	●
Ages 65+ Years	21.5	29.9	35.4	45.9	36.3	30.5	●

✓ = YES, met target O = NO, but within 25% of target ● = NO, > 25% from target

1. Data 2020 the Healthy People 2020 Database. (Source: https://www.healthypeople.gov).
2. Death rates are per 100,000 and age adjusted to the 2010 US Population except when noted.

Table 34. Rank of Premature Mortality Rates (PMR) for the Largest 30 Communities, Massachusetts: 2017 (Sorted by PMR)

Largest 30 Communities[1]	Number of Premature Deaths	PMR[2] (per 100,000)
Fall River	479	474.0*
Brockton	467	453.6*
New Bedford	480	440.7*
Springfield	651	416.2*
Pittsfield	228	411.1*
Worcester	765	410.3*
Lowell	450	392.6*
Taunton	260	387.6*
Haverhill	291	384.9*
Attleboro	205	384.7*
Chicopee	258	376.4*
Lynn	383	373.5*
Weymouth	259	369.1*
Lawrence	279	348.6*
Peabody	204	304.7
Quincy	337	291.8
Boston	1881	291.8
Revere	190	291.0
Methuen	176	287.0
Barnstable	168	285.7
Malden	201	285.6
Medford	181	268.7
Plymouth	214	264.1
Somerville	166	250.1
Waltham	168	249.2
Framingham	173	216.9*
Cambridge	193	203.9*
Arlington	103	178.6*
Brookline	91	142.1*
Newton	158	142.0*
STATE	**22,909**	**282.6**

1. These communities had the largest populations in Massachusetts, based on 2010 Census. Rates for cities and towns were calculated using MDPH population estimates for 2010, which are the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. 2. Rates are age-adjusted to the 2000 US Standard Population for person ages 0-74 years.

*** Significantly different from State PMR.**

Table 35. Premature Mortality Rates (PMR) by Community, Massachusetts: 2017		
City/Town	**Premature Deaths (#)**	**PMR**[1] (per 100,000 population)
STATE	**22,909**	**282.6**
Abington	57	264.8
Acton	43	154.4
Acushnet	57	422.7
Adams	35	311.9
Agawam	134	345.3
Alford	1	-[4]
Amesbury	76	357.4
Amherst	38	161.7
Andover	60	137.8
Aquinnah	1	-[4]
Arlington	103	178.6
Ashburnham	28	344.5
Ashby	11	240.1
Ashfield	2	-[4]
Ashland	39	168.2
Athol	59	404.4
Attleboro	205	384.7
Auburn	58	283.4
Avon	20	403.1
Ayer	43	468.6
Barnstable	168	285.7
Barre	18	285.4
Becket	12	359.3
Bedford	45	253.3
Belchertown	47	248.3
Bellingham	51	238.2
Belmont	36	111.6
Berkley	22	285.5
Berlin	7	116
Bernardston	5	218.2
Beverly	139	278.5
Billerica	140	276
Blackstone	35	296.4
Blandford	5	243.2
Bolton	11	159
Boston	1,881	291.8
Bourne	91	334.6
Boxborough	8	124
Boxford	18	153.3
Boylston	9	196.3
Braintree	140	306.3
Brewster	18	72.9
Bridgewater	73	225.4
Brimfield	22	359.3
Brockton	467	453.6
Brookfield	30	637.5

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Brookline	91	142.1
Buckland	6	244.8
Burlington	64	193
Cambridge	193	203.9
Canton	69	252.3
Carlisle	5	98.9
Carver	51	301
Charlemont	6	232.3
Charlton	52	341.7
Chatham	23	242.4
Chelmsford	89	190.2
Chelsea	114	344.5
Cheshire	11	298.2
Chester	9	484.2
Chesterfield	2	-[4]
Chicopee	258	376.4
Chilmark	0	0
Clarksburg	10	509.5
Clinton	47	296.6
Cohasset	23	243.9
Colrain	5	217.5
Concord	38	187.8
Conway	5	118.4
Cummington	6	429.1
Dalton	37	422.6
Danvers	98	272.5
Dartmouth	120	271.9
Dedham	87	268.5
Deerfield	16	168.8
Dennis	82	435.4
Dighton	24	237.6
Douglas	38	348.2
Dover	11	137.9
Dracut	116	297.3
Dudley	38	277.8
Dunstable	12	279.9
Duxbury	36	180.9
East Bridgewater	45	257.5
East Brookfield	10	325.2
East Longmeadow	40	186.8
Eastham	24	237.7
Easthampton	76	324.1
Easton	77	251.9
Edgartown	14	224.1
Egremont	2	-[4]
Erving	4	-[4]
Essex	14	268.4
Everett	145	312.9
Fairhaven	79	362.1

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Fall River	479	474
Falmouth	151	367.9
Fitchburg	185	428.2
Florida	4	-[4]
Foxborough	51	231.4
Framingham	173	216.9
Franklin	70	182
Freetown	39	380
Gardner	117	487.8
Georgetown	26	251
Gill	2	-[4]
Gloucester	122	311.5
Goshen	2	-[4]
Gosnold	1	-[4]
Grafton	42	177.6
Granby	14	172.5
Granville	3	-[4]
Great Barrington	44	524.3
Greenfield	89	373.2
Groton	25	191.7
Groveland	15	152.2
Hadley	21	300.8
Halifax	24	206.9
Hamilton	14	121
Hampden	26	356.7
Hancock	3	-[4]
Hanover	26	136.3
Hanson	38	274.8
Hardwick	9	214.7
Harvard	12	134.2
Harwich	54	267.2
Hatfield	16	412.8
Haverhill	291	384.9
Hawley	2	-[4]
Heath	3	-[4]
Hingham	42	151.2
Hinsdale	1	-[4]
Holbrook	49	364.2
Holden	47	195.6
Holland	14	332.9
Holliston	26	153.2
Holyoke	191	445.7
Hopedale	23	348
Hopkinton	36	179.2
Hubbardston	14	282
Hudson	67	253.3
Hull	53	342.8
Huntington	9	364.4

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Ipswich	46	246.5
Kingston	51	293
Lakeville	42	324
Lancaster	26	257.7
Lanesborough	16	390.5
Lawrence	279	348.6
Lee	22	361.4
Leicester	36	270.6
Lenox	18	297.3
Leominster	192	402.9
Leverett	4	-[4]
Lexington	66	150.7
Leyden	2	-[4]
Lincoln	5	67.4
Littleton	24	219.6
Longmeadow	38	182
Lowell	450	392.6
Ludlow	81	288.1
Lunenburg	45	296.7
Lynn	383	373.5
Lynnfield	26	181.9
Malden	201	285.6
Manchester	7	87.5
Mansfield	64	249.3
Marblehead	53	196.8
Marion	5	104.7
Marlborough	122	256.4
Marshfield	94	264.7
Mashpee	64	257.8
Mattapoisett	27	244.4
Maynard	31	242.9
Medfield	23	168.9
Medford	181	268.7
Medway	30	194.9
Melrose	76	222.8
Mendon	7	86.8
Merrimac	11	123.6
Methuen	176	287
Middleborough	116	315.9
Middlefield	3	-[4]
Middleton	27	222.5
Milford	96	288.8
Millbury	54	319.9
Millis	24	204.5
Millville	9	212.3
Milton	71	196.7
Monroe	0	0
Monson	37	334.1
Montague	50	411.7

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Monterey	1	-[4]
Montgomery	2	-[4]
Mount Washington	0	0
Nahant	16	287.3
Nantucket	27	210.8
Natick	79	189.9
Needham	56	164.8
New Ashford	1	-[4]
New Bedford	480	440.7
New Braintree	2	-[4]
New Marlborough	7	319.3
New Salem	3	-[4]
Newbury	21	225.4
Newburyport	49	203.9
Newton	158	142
Norfolk	24	153
North Adams	73	480.9
North Andover	77	226.9
North Attleboro	96	282.7
North Brookfield	24	399.6
North Reading	43	226
Northampton	105	283.7
Northborough	33	216
Northbridge	52	252.9
Northfield	9	224
Norton	62	251.6
Norwell	28	233.9
Norwood	109	293.6
Oak Bluffs	19	238.7
Oakham	6	157.3
Orange	37	321.8
Orleans	16	243
Otis	5	120.8
Oxford	60	342.5
Palmer	55	382.3
Paxton	17	274.7
Peabody	204	304.7
Pelham	2	-[4]
Pembroke	63	292
Pepperell	32	192.3
Peru	12	937.7
Petersham	6	260.5
Phillipston	3	-[4]
Pittsfield	228	411.1
Plainfield	1	-[4]
Plainville	43	387.8
Plymouth	214	264.1
Plympton	9	245.2
Princeton	10	237

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Provincetown	17	245.3
Quincy	337	291.8
Randolph	131	318.9
Raynham	65	345.4
Reading	49	152.5
Rehoboth	37	218.8
Revere	190	291
Richmond	3	-[4]
Rochester	8	127.2
Rockland	88	404.4
Rockport	27	232
Rowe	0	0
Rowley	26	314
Royalston	2	-[4]
Russell	3	-[4]
Rutland	27	279.9
Salem	152	300.5
Salisbury	46	396.6
Sandisfield	4	-[4]
Sandwich	72	234.9
Saugus	124	352.5
Savoy	2	-[4]
Scituate	43	191.8
Seekonk	50	281.3
Sharon	29	127.6
Sheffield	8	190.1
Shelburne	4	-[4]
Sherborn	4	-[4]
Shirley	34	358.2
Shrewsbury	82	189.6
Shutesbury	9	277.6
Somerset	77	324.7
Somerville	166	250.1
South Hadley	58	261.1
Southampton	19	187.6
Southborough	15	119.5
Southbridge	87	469.1
Southwick	32	257.9
Spencer	54	387.7
Springfield	651	416.2
Sterling	27	237.9
Stockbridge	8	291.1
Stoneham	81	293.2
Stoughton	95	267.5
Stow	15	178.8
Sturbridge	42	324.9
Sudbury	44	203.8
Sunderland	12	252.2
Sutton	28	242.2

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

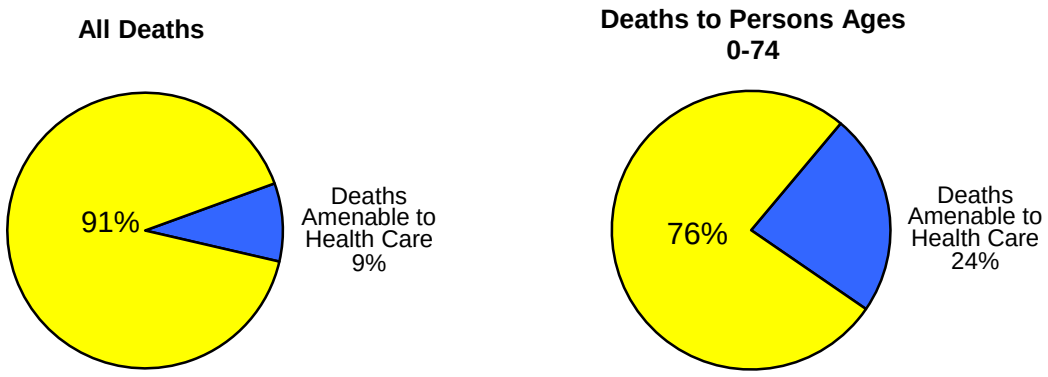
City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Swampscott	33	194.3
Swansea	77	367.1
Taunton	260	387.6
Templeton	24	193.9
Tewksbury	128	318.2
Tisbury	11	180.8
Tolland	4	-[4]
Topsfield	13	147.8
Townsend	29	241.9
Truro	7	151.3
Tyngsborough	32	226.3
Tyringham	3	-[4]
Upton	17	152.2
Uxbridge	46	234
Wakefield	99	296.8
Wales	10	360.5
Walpole	68	213.5
Waltham	168	249.2
Ware	51	399.4
Wareham	121	427.9
Warren	22	331.1
Warwick	8	1,418.30
Washington	2	-[4]
Watertown	89	222.3
Wayland	15	90.4
Webster	91	449.5
Wellesley	32	88
Wellfleet	9	272.1
Wendell	3	-[4]
Wenham	8	171.7
West Boylston	37	339.9
West Bridgewater	33	357.2
West Brookfield	12	244.2
West Newbury	10	138
West Springfield	136	385.3
West Stockbridge	4	-[4]
West Tisbury	9	173.1
Westborough	36	166.6
Westfield	152	307.1
Westford	49	181.9
Westhampton	5	149.3
Westminster	31	354.7
Weston	22	196.1
Westport	62	268.8
Westwood	22	116
Weymouth	259	369.1
Whately	5	249.4
Whitman	51	286.6
Wilbraham	33	160.6

Table 35 (continued). Premature Mortality Rates by Community, Massachusetts: 2017

City/Town	Premature Deaths (#)	PMR[1] (per 100,000 population)
Williamsburg	12	342.7
Williamstown	19	221
Wilmington	66	224.3
Winchendon	44	363.4
Winchester	42	149
Windsor	2	-[4]
Winthrop	75	275.5
Woburn	138	285.8
Worcester	765	410.3
Worthington	5	220.8
Wrentham	39	288.2
Yarmouth	119	355.3

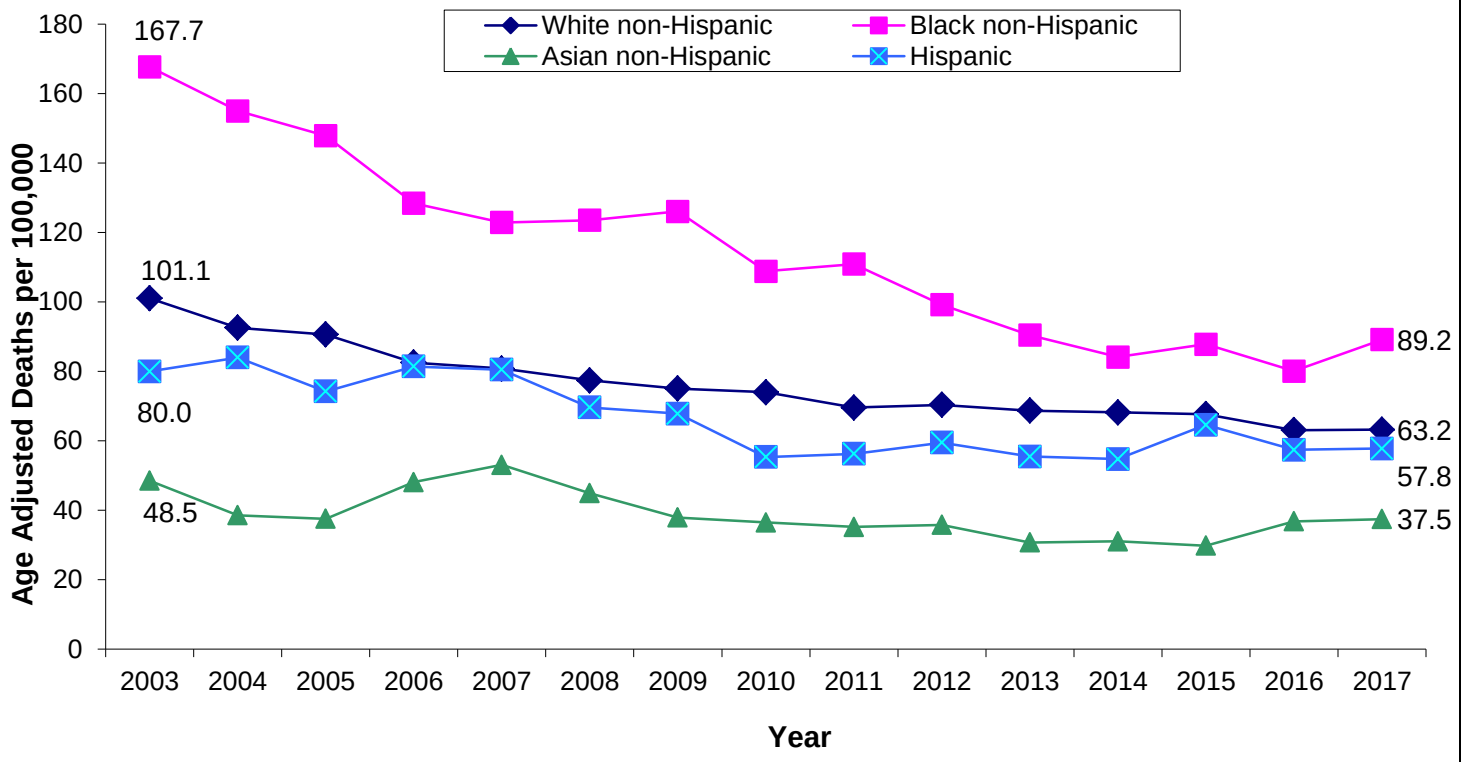
1. Premature mortality rates (PMR) are age-adjusted to the 2000 US Standard Population for persons ages 0-74 years.
2. Age-adjusted rates based on values 1-4 are excluded.

Figure 17. Percent of Deaths Amenable to Health Care[1], Massachusetts: 2017



1. Deaths amenable to health care are deaths that should be preventable with timely and effective health care. See Table A6 for a complete list of ICD codes included in this category.

Figure 18. Amenable Mortality[1] by Race and Hispanic Ethnicity[2], Massachusetts: 2003-2017



1. Deaths amenable to health care are deaths that should be preventable with timely and effective health care. See Table A6 for a complete list of ICD codes included in this category.
2. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation.

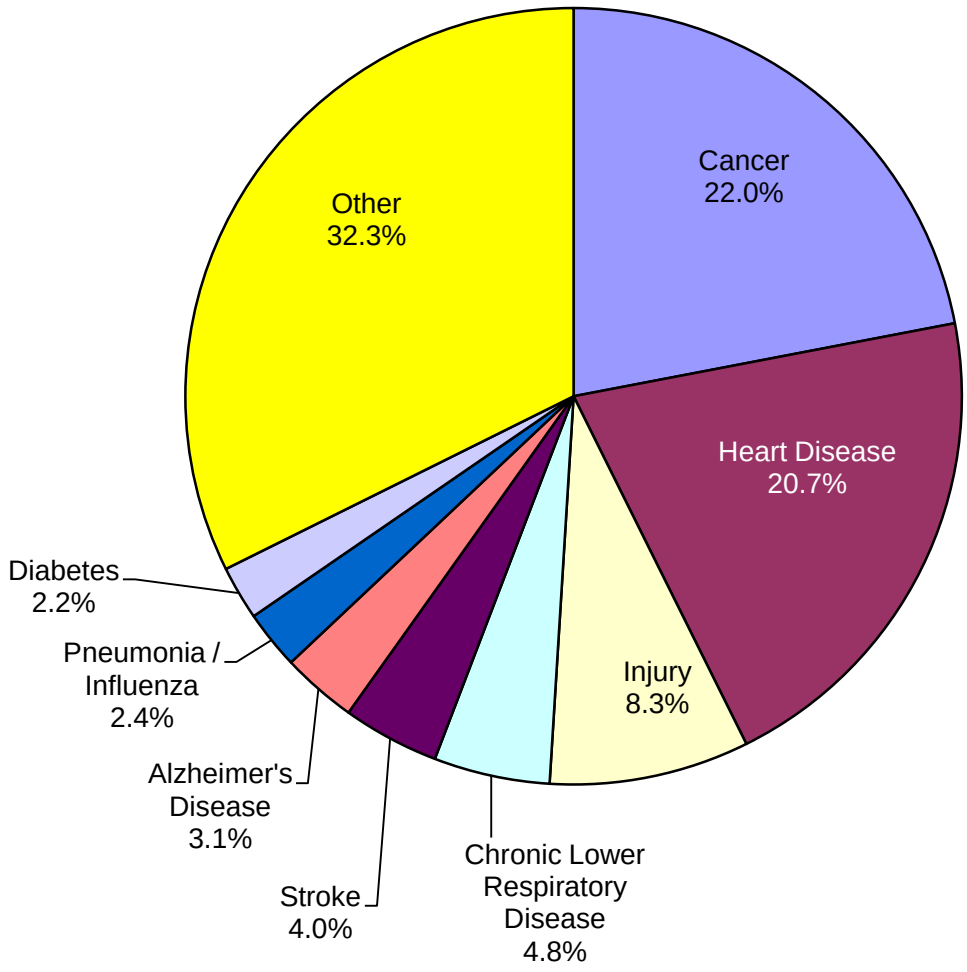
APPENDIX

Additional Tables & Figures

Technical Notes

Glossary

Figure 19. Percent Distribution of Leading Underlying Causes of Death, Massachusetts: 2017



Note: Total Number of Deaths = 58,844
Note: Causes of Death are classified according to ICD-10

Table 36. Number and Age-Specific Rates for Leading Underlying Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2017

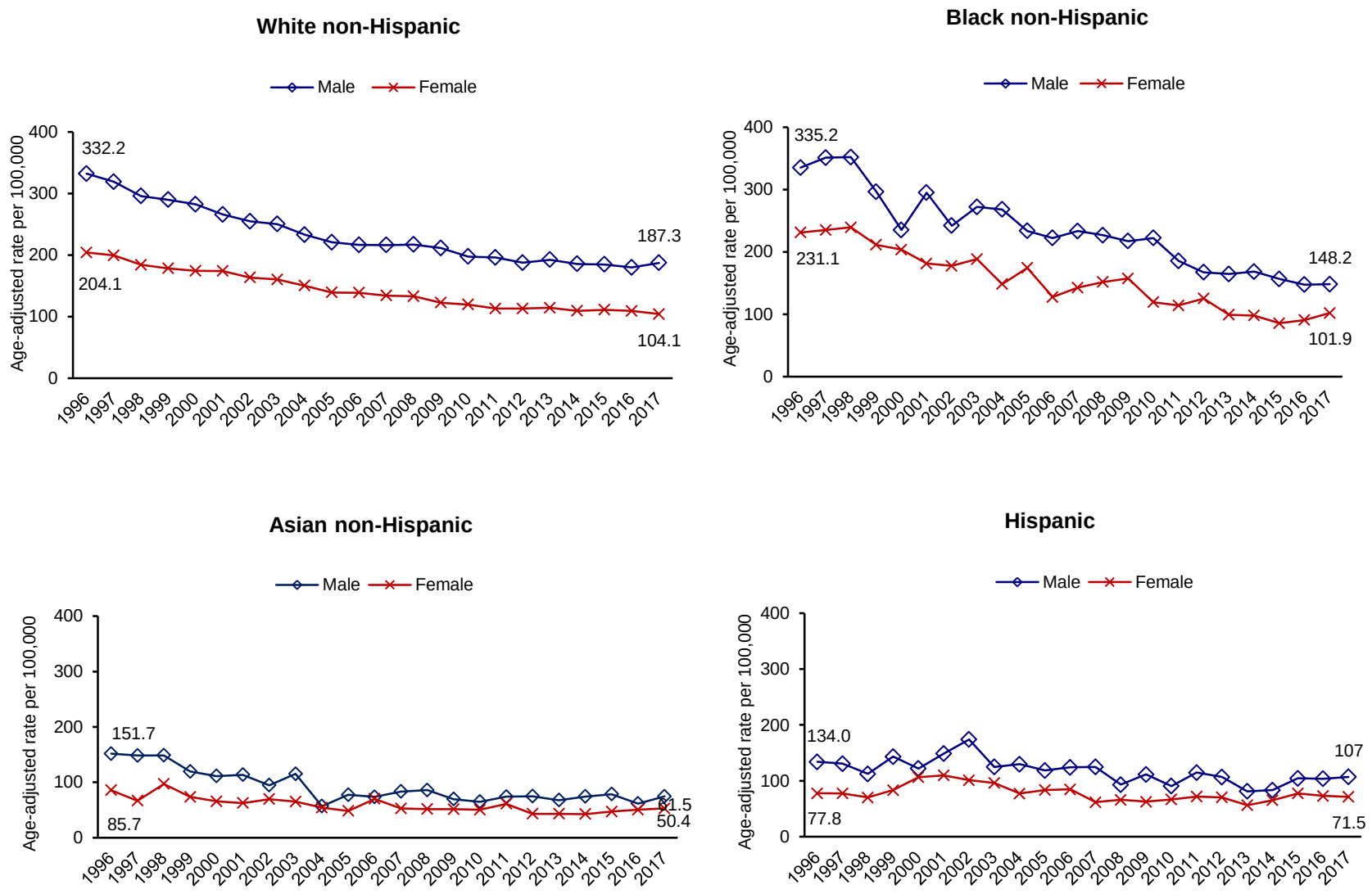
	Total		White non-Hispanic[1]		Black non-Hispanic[1]		Asian non-Hispanic[1]		Hispanic[1]	
Selected Causes[2]	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**
Age: 1-14, TOTAL	**122**	**11.4**	**68**	**10.4**	**16**	**17.4**	**10**	**13.6**	**25**	**12.5**
Cancer	26	2.4	14	2.1	2	-[6]	6	8.2	4	-[6]
Unintentional Injuries[4]	20	1.9	12	1.8	2	-[6]	1	-[6]	4	-[6]
Ill defined conditions	11	1.0	7	1.1	1	-[6]	1	-[6]	2	-[6]
Stroke	7	0.7	6	0.9	1	-[6]	.	.	.	.
Age: 15-24, TOTAL	**501**	**51.1**	**340**	**52.6**	**50**	**62.2**	**19**	**25.0**	**81**	**53.8**
Unintentional Injuries[4]	254	25.9	195	30.2	10	12.4	3	-[6]	39	25.9
Suicide	81	8.3	54	8.4	5	6.2	6	7.9	13	8.6
Homicide	50	5.1	9	1.4	24	29.9	1	-[6]	16	10.6
Cancer	21	2.1	15	2.3	1	-[6]	3	-[6]	2	-[6]
Age: 25-44, TOTAL	**2,788**	**154.8**	**2,011**	**167.1**	**245**	**166.3**	**76**	**44.0**	**393**	**152.5**
Unintentional Injuries[4]	1,342	74.5	1,039	86.3	70	47.5	17	9.8	186	72.2
Cancer	276	15.3	174	14.5	25	17.0	27	15.6	43	16.7
Suicide	249	13.8	201	16.7	11	7.5	9	5.2	22	8.5
Heart Disease	192	10.7	138	11.5	20	13.6	3	-[6]	28	10.9
Age: 45-64, TOTAL	**9,516**	**504.3**	**7,829**	**524.5**	**661**	**558.6**	**209**	**208.5**	**663**	**448.0**
Cancer	2,908	154.1	2,407	161.3	187	158.0	108	107.7	159	107.5
Heart Disease	1,613	85.5	1,314	88.0	122	103.1	30	29.9	115	77.7
Unintentional Injuries[4]	1,139	60.4	932	62.4	74	62.5	9	9.0	110	74.3
Chronic liver disease	384	20.4	346	23.2	11	9.3	2	-[6]	23	15.5
Age: 65+, TOTAL	**45,654**	**4,098.0**	**41,681**	**4,309.6**	**1,615**	**3,311.6**	**832**	**2,048.3**	**1,139**	**2,368.6**
Heart Disease	10,339	928.0	9,537	986.1	340	697.2	157	386.5	215	447.1
Cancer	9,704	871.0	8,773	907.1	388	795.6	208	512.1	238	494.9
Chronic lower respiratory disease	2,463	221.1	2,348	242.8	44	90.2	18	44.3	38	79.0
Stroke	2,128	191.0	1,872	193.6	97	198.9	79	194.5	53	110.2

Table 36 (continued). Number and Age-Specific Rates for Leading Underlying Causes of Death by Race and Hispanic Ethnicity, Massachusetts: 2017

	Total		White non-Hispanic[1]		Black non-Hispanic[1]		Asian non-Hispanic[1]		Hispanic[1]	
Selected Causes[2]	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**	**#**	**Rate[3]**
Age: 65-74, TOTAL	**9,719**	**1,509.3**	**8,501**	**1,538.4**	**517**	**1,743.1**	**190**	**776.4**	**406**	**1,310.7**
Cancer	3,466	538.3	3,080	557.4	166	559.7	73	298.3	114	368.0
Heart Disease	1,794	278.6	1,571	284.3	97	327.0	29	118.5	70	226.0
Chronic Lower Respiratory Disease[5]	620	96.3	585	105.9	11	37.1	4	16.3	14	45.2
Stroke	313	48.6	253	45.8	25	84.3	18	73.6	13	42.0
Age: 75-84, TOTAL	**13,272**	**4,306.3**	**11,938**	**4,455.5**	**505**	**3,703.4**	**289**	**2,419.3**	**417**	**3,337.8**
Cancer	3,441	1,116.5	3,093	1,154.4	133	975.4	87	728.3	89	712.4
Heart Disease	2,622	850.7	2,364	882.3	104	762.7	52	435.3	73	584.3
Chronic Lower Respiratory Disease[5]	884	286.8	842	314.2	16	117.3	8	67.0	13	104.1
Stroke	605	196.3	517	193.0	25	183.3	32	267.9	26	208.1
Age: 85+, TOTAL	**22,663**	**13,995.1**	**21,242**	**14,487.5**	**593**	**10,837.2**	**353**	**8,400.3**	**316**	**6,842.7**
Heart Disease	5,923	3,657.6	5,602	3,820.7	139	2,540.2	76	1,808.6	72	1,559.1
Cancer	2,797	1,727.2	2,600	1,773.3	89	1,626.5	48	1,142.2	35	757.9
Alzheimer's Disease	1,288	795.4	1,214	828.0	33	603.1	12	285.6	19	411.4
Stroke	1,210	747.2	1,102	751.6	47	858.9	29	690.1	14	303.2

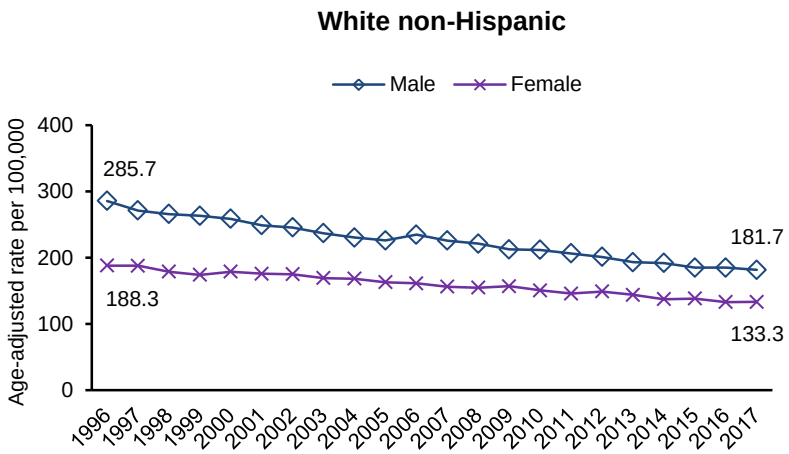
1. Race and ethnicity data in this table are presented as mutually exclusive categories. Persons of Hispanic ethnicity are not included in a race category. Please see Technical Notes in the Appendix for a more detailed explanation. 2. Deaths are coded according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 3. Number of deaths per 100,000 persons in each age group. 4. Unintentional injuries include injuries such as motor vehicle-related and other transportation related deaths, falls, fires, and drownings that were not intended to occur. 5. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 6. Calculations based on values 1-4 are excluded.

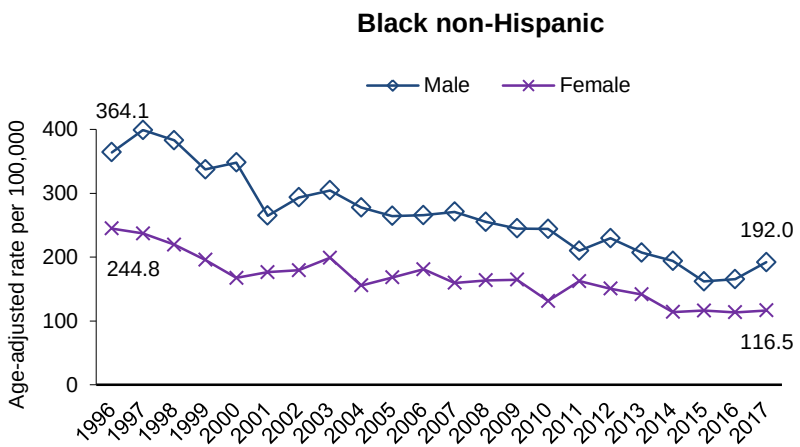
Figure 20. Heart Disease Death Rates[1] by Race and Hispanic Ethnicity and Gender, Massachusetts: 1996-2017[2]

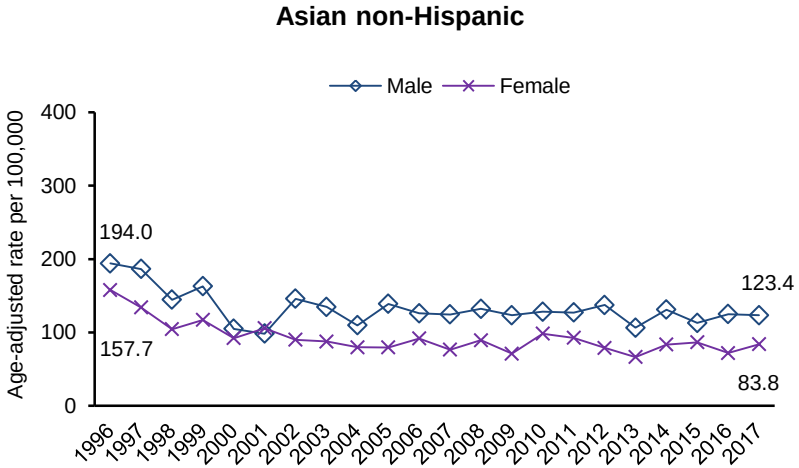


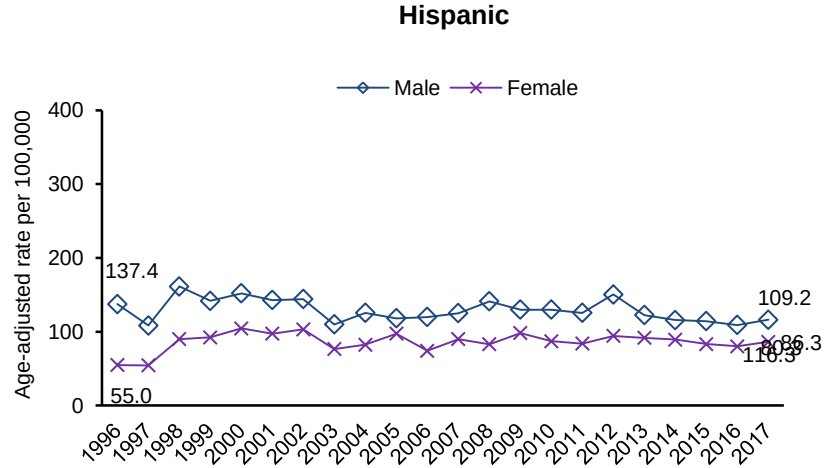
1. Rates are per 100,000 population, age-adjusted to the 2010 U.S. Standard Population. 2. For 1996-1998 the comparability-modified rates were used.

Figure 21. Cancer Death Rates[1] by Race and Hispanic Ethnicity and Gender, Massachusetts: 1996-2017[2]









1. Rates are per 100,000 population, age-adjusted to the 2010 U.S. Standard Population. 2. For 1996-1998 the comparability-modified rates were used.

Table 37. Premature Mortality[1] Rates (PMR) by Community Health Network Area (CHNA), Massachusetts: 2017

CHNA (Name and Number)	Number of Deaths	PMR[2] (per 100,000 population)
Massachusetts	**22,903**	**282.6**
1. Community Health Network of Berkshire	598	354.7
2. Upper Valley Health Web (Franklin County)	361	284.7
3. Partnership for Health in Hampshire County (Northampton)	483	257.5
4. The Community Health Connection (Springfield)	1,199	348.1
5. Community Health Network of Southern Worcester County	568	378.8
6. Community Partners for Health (Milford)	502	235.3
7. Community Health Network of Greater Metro West (Framingham)	1,007	204.5
8. Common Pathways (Worcester)	1,147	326.3
9. Community Health Network of North Central Massachusetts	1,056	323.5
10. Greater Lowell Community Health Network	1,016	302.3
11. Greater Lawrence Community Health Network	619	273.3
12. Greater Haverhill Community Health Network	589	301.2
13. Community Health Network North (Beverly/Gloucester)	390	249.7
14. North Shore Community Health Network	1,089	304.8
15. Northwest Suburban Health Alliance	544	193.1
16. North Suburban Health Alliance (Medford/Malden/Melrose)	875	261.0
17. Greater Cambridge/Somerville Community Health Network	587	199.3
18. West Suburban Health Network (Newton/Waltham)	556	173.4
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	2,351	281.1
20. Blue Hills Community Health Alliance (Greater Quincy)	1,334	274.1
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	700	364.1
22. Greater Brockton Community Health Network	967	342.0
23. South Shore Community Health Network	694	265.6
24. Greater Attleboro-Taunton Health & Education Response	1,043	318.6
25. Partners for Healthier Communities (Fall River)	695	412.4
26. Greater New Bedford Community Health Network	936	371.3
27. Cape Cod and Islands Health Network	997	284.1

1. Premature mortality is death before 75 years of age.2. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population for persons ages 0-74 years.

Table 38. Premature Mortality[1] Rates by County, Massachusetts: 2017

County	Number of Deaths	PMR[2] (per 100,000 population)
Massachusetts	**22,903**	**282.6**
Barnstable	915	295.7
Berkshire	598	354.7
Bristol	2,432	360.8
Dukes	55	198.7
Essex	2,687	287.1
Franklin	291	274.1
Hampden	1,936	354.2
Hampshire	492	259.3
Middlesex	4,195	227.8
Nantucket	27	210.8
Norfolk	2,054	242.2
Plymouth	1,905	296.6
Suffolk	2,260	292.7
Worcester	3,056	317.5

1. Premature mortality is death before 75 years of age.2. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population for persons ages 0-74 years.

Table 39. Selected Causes of Death by Community, Massachusetts: 2017

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Massachusetts	**58,844**	**675.7**	**12,165**	**12,937**	**3,074**	**894**	**2,370**	**2,843**	**1,323**	**1,434**	**423**	**180**	**692**	**1,965**
Abington	129	738.9	24	33	7	1	6	8	6	4	1	0	0	4
Acton	130	486.5	27	29	4	3	6	3	4	4	3	0	2	1
Acushnet	116	803	24	23	5	0	8	8	1	3	2	0	2	7
Adams	101	756.4	25	19	3	2	5	8	3	3	1	0	1	0
Agawam	356	691.9	78	72	18	5	19	21	7	6	2	0	9	7
Alford	4	-[4]	0	0	0	0	0	0	0	0	0	0	0	0
Amesbury	158	798.2	28	24	4	4	6	14	1	3	0	0	5	10
Amherst	165	559.7	33	35	5	4	8	4	3	6	2	0	1	3
Andover	213	471.6	38	45	5	2	9	7	5	7	1	0	2	2
Aquinnah	1	-[4]	0	1	0	0	0	0	0	0	0	0	0	0
Arlington	350	533.9	72	91	15	8	12	12	5	9	0	0	5	3
Ashburnham	52	871.8	8	21	3	4	1	3	0	0	1	0	2	0
Ashby	24	760	5	9	4	0	0	1	1	0	0	0	1	0
Ashfield	10	410.7	3	3	0	0	0	0	0	0	0	0	0	0
Ashland	103	531.5	25	19	7	1	2	5	2	3	0	0	4	4
Athol	144	888.5	30	36	12	2	6	4	3	3	0	0	3	6
Attleboro	445	811.9	94	104	34	9	13	30	13	11	4	0	3	26
Auburn	199	724.7	48	49	12	3	6	17	3	5	0	0	0	3
Avon	49	855.3	13	11	5	0	2	3	2	1	0	1	1	2
Ayer	94	1,155.10	22	24	4	2	1	5	1	1	0	1	3	1
Barnstable	505	672.9	111	116	23	5	37	21	9	10	5	1	6	13
Barre	43	667.4	6	15	5	1	1	2	1	2	1	0	0	0
Becket	22	1,019.10	4	6	1	1	2	0	0	1	0	0	2	0
Bedford	152	616.5	24	31	7	2	3	11	4	7	2	0	0	3
Belchertown	95	591.9	15	27	6	1	6	6	5	2	2	0	2	5
Bellingham	120	638.8	22	37	14	0	7	7	2	1	1	0	0	4
Belmont	150	411.3	37	32	8	7	4	6	1	1	0	0	0	3
Berkley	45	813.4	7	11	1	2	2	4	1	2	0	0	0	3
Berlin	32	568.5	12	6	2	0	1	4	0	0	1	0	0	0
Bernardston	16	523.8	5	3	1	1	2	0	1	1	0	0	0	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Beverly	423	775.4	79	94	21	5	15	30	10	6	2	1	4	11
Billerica	351	743	63	76	28	2	11	19	10	7	4	0	6	14
Blackstone	68	603.5	17	14	5	1	2	2	2	3	0	1	4	1
Blandford	8	433.5	0	6	0	2	0	1	0	0	0	0	0	0
Bolton	23	457.7	5	4	0	0	1	0	2	1	0	0	1	0
Boston	3,981	637.2	753	852	175	74	165	159	137	75	22	55	36	198
Bourne	254	775.1	40	59	10	4	8	14	11	12	4	0	3	12
Boxborough	25	497.2	8	1	1	0	1	0	0	1	0	0	0	1
Boxford	49	486.6	6	11	1	1	2	4	0	3	1	0	0	1
Boylston	33	639.4	3	7	1	0	1	5	2	0	1	0	2	1
Braintree	418	729.7	94	95	27	11	17	14	8	10	1	0	1	16
Brewster	158	504.4	45	28	5	0	13	7	7	5	0	0	0	0
Bridgewater	185	668.3	43	46	11	4	3	9	3	10	2	0	2	7
Brimfield	46	934.3	11	14	5	0	0	3	1	0	0	0	1	1
Brockton	870	857.6	188	189	47	11	26	34	25	19	14	7	11	49
Brookfield	53	1,237.30	7	17	8	0	2	3	1	1	1	0	1	2
Brookline	301	403	63	76	11	4	16	5	2	10	2	0	4	6
Buckland	15	578.3	0	5	2	0	0	1	0	0	0	0	1	0
Burlington	242	585.6	60	46	5	1	10	17	3	2	0	0	1	8
Cambridge	474	507	99	115	25	13	20	15	13	10	2	0	7	12
Canton	254	670.6	53	49	11	2	14	7	3	2	1	0	1	9
Carlisle	27	577.7	7	8	2	0	2	0	0	1	0	0	1	0
Carver	110	719	20	31	6	2	2	6	2	2	0	0	1	6
Charlemont	15	713.3	2	9	4	0	0	0	0	0	0	0	0	0
Charlton	132	668.3	24	25	5	1	9	6	3	5	1	0	0	6
Chatham	115	616.1	31	23	3	1	11	7	3	1	1	0	0	0
Chelmsford	332	604.3	83	66	17	5	8	16	6	14	1	0	2	6
Chelsea	263	869.4	51	46	11	1	12	7	12	10	3	2	2	13
Cheshire	35	891.3	9	5	4	0	3	4	0	0	1	0	0	1
Chester	11	592.8	2	5	2	0	0	1	0	0	0	0	0	1
Chesterfield	8	527.5	2	2	2	0	2	1	0	0	0	0	0	0
Chicopee	603	799.1	121	127	37	4	14	47	12	20	4	3	3	19
Chilmark	8	403	1	2	0	0	1	2	0	0	0	0	0	0
Clarksburg	32	1,499.50	8	9	3	1	1	1	1	2	0	0	1	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Clinton	139	920.8	37	30	4	1	8	5	3	2	1	2	3	2
Cohasset	65	524.3	17	12	4	2	3	3	0	2	0	0	3	1
Colrain	12	557.1	2	3	1	0	3	1	0	0	1	0	0	0
Concord	172	428.1	34	31	3	4	9	4	4	5	2	1	3	1
Conway	10	392.2	1	5	0	0	0	1	0	0	0	0	0	0
Cummington	13	924.8	1	5	1	0	0	2	0	0	0	0	1	0
Dalton	95	837.6	25	14	3	1	3	6	1	2	0	0	0	0
Danvers	348	723.4	65	39	9	4	15	25	10	4	2	0	3	9
Dartmouth	374	692.4	85	63	13	3	19	25	9	9	3	1	3	6
Dedham	339	661.3	81	75	13	8	14	19	6	10	1	0	4	2
Deerfield	49	657.5	11	13	4	0	3	2	2	0	0	0	0	0
Dennis	276	885.3	66	62	14	1	11	12	8	7	1	0	5	5
Dighton	61	714.6	12	19	7	2	2	2	3	0	0	0	0	1
Douglas	56	685.8	15	16	3	1	3	5	0	2	0	0	0	2
Dover	30	514.7	5	6	1	0	2	0	0	1	0	0	0	1
Dracut	286	783.2	61	78	19	8	9	17	10	7	0	0	5	5
Dudley	89	684.2	24	22	4	1	0	7	2	1	0	0	1	2
Dunstable	26	831.1	3	10	3	2	0	2	0	2	0	0	0	1
Duxbury	127	477.8	26	32	9	5	9	5	2	3	1	0	0	1
East Bridgewater	121	737.7	35	29	9	1	3	6	3	3	1	0	1	4
East Brookfield	22	827.6	3	4	3	0	2	1	0	1	0	0	0	0
East Longmeadow	224	615.1	57	43	10	0	10	8	1	4	1	0	2	0
Eastham	73	563.3	26	21	7	1	0	1	1	0	0	0	0	1
Easthampton	175	741.1	53	38	13	1	8	8	5	1	0	0	0	4
Easton	181	641.8	42	39	6	0	6	10	0	3	4	0	0	7
Edgartown	37	731.5	3	13	5	1	1	1	0	4	1	0	1	0
Egremont	8	412.9	2	1	0	0	0	0	0	0	0	0	0	0
Erving	13	499.4	6	2	1	0	0	1	1	1	0	0	0	0
Essex	29	598.8	5	12	4	0	2	0	2	1	0	0	1	0
Everett	298	665.8	80	62	18	3	8	7	5	10	2	3	6	18
Fairhaven	234	808.6	51	48	16	3	6	12	1	8	1	0	1	8
Fall River	1,053	914.3	219	184	48	13	35	66	32	46	6	2	16	55
Falmouth	451	719.2	98	99	22	6	27	21	4	9	2	0	4	20
Fitchburg	395	874.8	69	68	18	5	23	22	9	5	5	0	9	24

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Florida	9	816.1	2	3	1	0	0	0	0	0	1	0	1	0
Foxborough	118	560.5	25	32	9	3	1	4	2	1	0	1	2	2
Framingham	565	572.8	153	115	23	7	20	27	11	15	3	1	10	8
Franklin	196	593	44	58	9	2	4	13	3	3	2	0	3	2
Freetown	74	789.5	10	22	8	1	0	7	0	3	1	0	1	6
Gardner	256	938.9	62	44	9	6	28	16	5	6	2	1	2	8
Georgetown	51	617.8	6	14	5	1	1	5	1	1	1	0	2	3
Gill	10	526.4	5	2	2	0	1	0	1	0	0	0	0	0
Gloucester	325	720.3	68	73	20	3	6	15	4	9	1	0	1	15
Goshen	3	-[4]	0	1	0	0	0	1	0	0	0	0	0	0
Gosnold	1	-[4]	1	0	0	0	0	0	0	0	0	0	0	0
Grafton	119	631.7	21	38	9	1	4	4	4	4	3	0	1	0
Granby	43	597.2	7	11	2	0	0	3	0	0	0	0	3	0
Granville	14	679	2	3	1	0	0	0	0	0	0	0	1	0
Great Barrington	106	994.1	17	18	5	1	5	9	2	1	0	0	4	0
Greenfield	229	825.8	41	48	11	2	12	14	7	7	0	0	2	4
Groton	66	504.7	10	19	0	0	3	1	2	2	0	2	0	1
Groveland	51	478.8	11	16	5	0	2	3	0	1	0	0	1	1
Hadley	63	590.3	16	11	1	2	5	1	2	0	0	0	0	1
Halifax	65	712.8	11	16	1	0	2	3	3	2	1	0	0	0
Hamilton	45	481.6	7	12	2	0	3	1	0	3	0	0	0	0
Hampden	68	755.8	14	16	6	1	2	0	0	0	1	0	2	0
Hancock	6	442.8	0	2	1	0	1	0	0	0	0	0	0	0
Hanover	84	498.8	18	22	8	0	5	4	1	2	1	0	0	1
Hanson	81	750.6	18	21	6	1	2	4	3	0	1	0	1	1
Hardwick	23	659.6	4	4	0	0	1	2	0	0	1	0	0	0
Harvard	38	696.5	4	12	2	1	1	2	0	0	0	0	0	0
Harwich	198	686.1	43	55	9	3	8	7	6	4	1	0	0	1
Hatfield	35	778.3	11	9	3	0	3	2	1	1	0	0	1	1
Haverhill	617	818.5	134	135	39	7	25	29	20	15	9	2	12	28
Hawley	4	-[4]	0	1	0	0	0	0	0	2	0	0	0	0
Heath	8	575	0	5	3	0	0	0	0	0	0	0	0	0
Hingham	308	514.1	86	51	10	4	11	17	5	10	1	0	1	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Hinsdale	8	230.4	2	2	2	0	0	0	1	1	0	0	0	0
Holbrook	117	868.9	27	25	7	2	8	5	3	7	2	0	1	4
Holden	120	487.9	19	33	12	0	4	7	5	2	0	0	0	1
Holland	22	752.5	8	9	4	0	0	0	0	0	0	0	0	0
Holliston	77	483.6	22	19	3	1	1	1	1	1	1	1	1	3
Holyoke	499	944.3	99	90	20	7	18	26	11	14	2	4	4	13
Hopedale	59	765.1	13	18	6	3	1	2	1	2	0	0	1	2
Hopkinton	92	731.8	19	24	8	2	5	5	0	1	1	0	4	3
Hubbardston	31	765.8	8	8	1	0	2	0	0	0	1	0	0	1
Hudson	171	663.1	38	47	11	3	5	8	3	3	1	0	2	4
Hull	99	728.3	22	24	7	3	2	3	1	3	1	0	0	7
Huntington	21	906.6	2	7	1	0	2	0	3	2	0	0	0	0
Ipswich	130	585.9	25	32	7	2	9	7	0	3	1	0	5	3
Kingston	138	660	29	26	11	0	6	9	3	5	2	0	0	7
Lakeville	100	843	27	17	2	0	1	9	0	3	0	0	1	4
Lancaster	61	641.4	13	11	2	0	4	1	4	1	2	0	0	2
Lanesborough	34	802.5	9	10	6	0	1	1	0	0	0	0	1	2
Lawrence	518	745.4	81	106	24	6	24	26	13	9	3	10	9	39
Lee	88	908.2	15	16	4	0	4	2	3	4	2	0	0	3
Leicester	100	759.4	17	16	6	2	5	9	1	4	2	0	2	4
Lenox	98	671	16	16	6	1	10	2	2	4	0	0	0	2
Leominster	458	835	97	75	15	8	28	31	16	4	3	4	5	16
Leverett	13	648.9	3	3	1	1	1	1	0	1	0	0	0	1
Lexington	272	447	59	54	10	3	13	10	4	10	0	0	4	0
Leyden	5	976.1	0	3	0	1	0	0	0	0	0	0	0	0
Lincoln	58	1,104.50	12	19	5	1	1	2	0	1	0	0	0	0
Littleton	78	634	11	16	5	0	3	4	1	4	1	0	3	1
Longmeadow	176	553.1	44	37	5	5	6	9	0	5	4	0	1	0
Lowell	856	810.7	153	145	39	7	26	47	24	20	6	3	16	53
Ludlow	210	636.7	42	50	10	4	11	8	3	4	3	0	3	3
Lunenburg	103	787.2	23	31	10	3	9	6	2	0	1	0	1	2
Lynn	750	783.9	184	153	42	9	25	35	15	14	2	9	9	62
Lynnfield	101	547.6	20	18	2	1	7	2	2	1	0	0	1	2
Malden	425	652.3	77	115	29	10	19	21	16	8	0	2	4	14

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Manchester	36	444.4	12	7	2	0	2	2	1	0	1	0	0	0
Mansfield	144	636.3	27	29	10	4	6	9	3	4	2	0	4	8
Marblehead	154	529.5	28	34	10	3	6	3	2	5	1	0	3	5
Marion	61	601.2	11	15	4	0	3	2	1	3	2	0	0	1
Marlborough	321	626.4	72	68	17	6	13	25	11	10	5	0	7	5
Marshfield	239	770.8	43	68	26	2	7	9	4	9	1	0	5	12
Mashpee	167	554.1	33	47	16	4	8	9	2	1	3	1	2	1
Mattapoisett	69	644.4	14	14	5	1	7	2	0	2	0	0	0	1
Maynard	77	672.4	23	20	5	2	3	5	1	1	0	0	2	2
Medfield	71	516.5	17	19	5	2	1	1	3	0	0	0	3	0
Medford	517	645.6	104	102	22	5	18	15	17	18	4	0	3	18
Medway	78	534.3	8	22	4	1	2	2	1	1	1	0	1	0
Melrose	199	508.7	50	32	13	1	6	7	8	3	0	0	1	11
Mendon	32	657	8	6	1	0	0	2	1	0	0	0	0	0
Merrimac	35	465.9	7	12	5	0	1	3	1	0	0	0	1	1
Methuen	484	733.4	98	98	26	5	22	26	6	12	5	0	8	19
Middleborough	264	703.8	32	74	21	6	6	17	1	5	8	0	3	7
Middlefield	5	486.4	4	1	0	0	0	0	0	0	0	0	0	0
Middleton	78	617.9	16	17	6	1	4	3	1	4	0	0	1	3
Milford	259	727.7	65	47	14	4	9	14	9	8	0	1	2	6
Millbury	131	751	34	36	12	1	6	6	3	2	1	0	2	7
Millis	57	632.9	14	12	3	0	4	1	0	1	3	0	0	1
Millville	21	711.8	3	2	1	0	1	1	0	2	0	0	1	0
Milton	251	584.9	51	58	11	6	16	10	8	4	2	1	0	1
Monroe	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monson	61	596.8	11	13	1	1	3	1	1	1	0	0	3	1
Montague	114	932.9	22	19	7	0	5	9	2	5	2	0	1	2
Monterey	6	497.4	2	0	0	0	0	0	0	0	0	0	1	0
Montgomery	7	603.6	2	0	0	0	0	0	0	0	0	0	0	0
Mount Washington	1	-[4]	0	0	0	0	0	0	0	0	0	0	0	0
Nahant	37	581.4	5	7	2	0	1	0	1	2	0	1	0	0
Nantucket	72	578.3	18	14	2	1	5	0	1	3	0	0	3	3
Natick	267	606.7	71	60	11	5	10	11	4	5	0	0	1	7
Needham	274	532.3	67	49	14	3	13	10	2	10	1	1	3	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
New Ashford	2	-[4]	1	0	0	0	0	1	0	0	0	0	0	0
New Bedford	1,021	827.2	189	194	49	19	41	50	30	30	11	10	13	43
New Braintree	4	-[4]	1	2	1	0	0	0	0	0	1	0	0	0
New Marlborough	16	678.5	6	4	0	1	2	2	0	0	0	0	0	1
New Salem	5	498.3	2	1	0	1	0	0	0	0	0	0	0	0
Newbury	52	659.1	14	6	1	0	5	4	2	1	1	0	1	1
Newburyport	196	683	32	36	9	3	9	14	2	6	1	0	3	5
Newton	611	448.3	127	165	36	17	27	13	10	14	0	0	4	9
Norfolk	62	645.6	6	18	0	1	3	2	5	0	0	0	0	0
North Adams	190	1,041.10	56	34	10	3	7	6	2	10	2	0	0	5
North Andover	283	673.8	46	51	13	5	9	9	2	8	0	0	2	4
North Attleboro	210	691.6	30	57	10	3	6	11	9	4	2	0	8	9
North Brookfield	44	740.3	8	13	3	1	0	0	2	0	2	0	2	1
North Reading	115	627.8	18	30	6	0	5	4	1	7	2	0	4	6
Northampton	258	670.7	53	60	13	6	15	15	7	6	0	0	3	7
Northborough	116	591.1	23	19	4	1	7	9	1	2	0	0	2	2
Northbridge	162	706.7	25	26	6	1	6	12	7	4	1	0	0	4
Northfield	25	578	6	5	2	1	0	0	0	1	1	0	2	0
Norton	152	696.7	28	37	9	3	6	11	3	2	1	0	0	5
Norwell	85	534.2	13	17	2	1	4	5	1	3	0	0	1	3
Norwood	329	683.2	68	72	17	6	15	13	5	5	2	0	1	8
Oak Bluffs	43	477.1	12	10	1	2	1	2	0	2	0	0	0	1
Oakham	10	388	3	2	0	0	0	1	2	0	0	0	0	0
Orange	80	776.7	20	16	2	1	4	3	2	4	1	0	0	1
Orleans	98	588.4	24	23	3	1	5	4	2	2	0	0	2	0
Otis	11	372.7	4	3	1	0	1	0	0	1	0	0	0	0
Oxford	123	834.6	24	35	5	0	3	11	1	2	1	0	2	4
Palmer	127	811.4	34	22	7	2	4	6	5	4	3	0	4	3
Paxton	33	558.6	5	12	1	0	2	1	0	0	0	0	1	0
Peabody	771	680	191	141	32	10	29	26	25	7	4	2	9	23
Pelham	9	482.2	4	3	1	1	0	0	0	0	0	0	0	0
Pembroke	144	811.8	16	42	12	4	2	9	2	5	1	0	2	7
Pepperell	77	634.5	12	21	5	1	7	4	2	1	0	0	0	2
Peru	18	1,814.10	5	5	0	0	1	0	0	0	1	0	1	1

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Petersham	11	618.4	2	2	0	0	1	3	0	0	0	0	0	0
Phillipston	9	727.7	3	3	0	1	0	0	0	0	0	0	0	0
Pittsfield	549	813.3	116	110	30	7	21	35	12	13	1	3	9	12
Plainfield	6	745.3	1	2	1	0	1	0	0	0	0	0	0	0
Plainville	82	805.6	15	23	8	3	2	6	0	1	1	0	2	5
Plymouth	542	664.3	102	150	35	12	15	22	11	18	4	0	5	24
Plympton	25	691.4	6	4	1	1	1	1	0	0	1	0	1	0
Princeton	17	464.7	3	4	1	0	0	0	1	0	0	0	0	0
Provincetown	37	657.1	4	11	3	1	1	1	1	2	0	0	1	0
Quincy	848	645.6	171	182	42	17	36	46	20	28	7	1	7	38
Randolph	276	688.5	50	64	11	6	16	11	8	1	2	2	5	6
Raynham	159	841.4	23	37	12	2	6	10	3	4	1	0	3	4
Reading	195	547.9	34	45	7	2	7	7	4	8	1	1	1	6
Rehoboth	74	524.9	26	14	4	0	2	4	2	1	0	0	0	2
Revere	475	641	102	111	25	5	18	26	10	11	2	2	0	24
Richmond	8	312.5	1	1	0	1	0	0	0	1	0	0	0	0
Rochester	29	533.7	9	3	0	0	2	3	0	0	0	0	0	2
Rockland	184	829	28	38	7	1	7	14	4	4	3	0	1	15
Rockport	86	622.3	18	25	5	1	2	4	0	1	0	0	0	2
Rowe	3	-[4]	0	2	0	0	1	0	0	0	0	0	0	0
Rowley	54	749.5	9	11	2	1	1	2	2	2	2	0	0	3
Royalston	8	727.9	2	1	0	0	0	0	1	0	0	0	0	0
Russell	13	788.1	3	1	0	0	1	1	0	2	0	0	0	0
Rutland	58	778.2	15	14	5	0	4	1	0	2	2	0	0	1
Salem	344	679.5	73	67	18	6	13	16	8	10	1	1	7	21
Salisbury	83	757.5	17	19	2	1	4	9	1	0	0	0	0	9
Sandisfield	8	470.9	2	1	0	0	1	1	0	0	0	0	0	0
Sandwich	202	679.5	38	45	8	2	16	9	3	4	3	0	3	3
Saugus	300	768.2	42	99	17	4	8	16	7	11	1	0	4	8
Savoy	5	750.3	0	1	0	0	0	1	0	0	0	0	0	0
Scituate	162	590.7	47	31	3	4	7	7	0	8	1	0	3	3
Seekonk	123	682.6	31	25	8	1	3	4	7	1	2	0	0	2
Sharon	91	429.7	21	24	6	3	3	2	1	1	1	0	3	2
Sheffield	34	655.5	8	13	2	4	0	1	0	0	3	0	0	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Shelburne	12	383.8	0	4	2	0	0	1	0	1	0	0	0	0
Sherborn	14	302.4	6	2	0	0	0	0	0	0	0	0	0	1
Shirley	63	796.8	14	15	4	1	2	2	0	1	0	0	4	3
Shrewsbury	288	571.3	55	67	17	5	8	15	3	6	2	0	1	8
Shutesbury	10	325.2	4	4	2	0	0	1	0	0	0	0	0	0
Somerset	246	690.1	62	55	9	3	10	12	3	9	1	0	5	5
Somerville	419	672.9	65	116	21	12	12	21	11	10	0	1	9	16
South Hadley	187	655.5	48	43	9	4	4	7	0	6	1	0	2	3
Southampton	46	659.9	6	16	3	1	2	2	2	1	0	0	0	1
Southborough	47	443	12	13	4	1	3	0	0	2	0	0	0	0
Southbridge	200	969.7	47	42	10	2	5	16	7	2	2	0	3	5
Southwick	90	617.7	15	25	4	1	2	6	1	2	1	0	2	3
Spencer	112	787.5	21	27	7	2	6	6	2	2	0	0	2	5
Springfield	1,304	860.6	277	260	57	29	58	58	36	22	15	15	13	37
Sterling	72	570.7	14	18	4	4	3	2	3	0	0	1	0	1
Stockbridge	28	784.1	7	9	1	3	2	1	0	1	2	0	0	1
Stoneham	239	658.4	49	56	15	7	8	14	2	2	2	0	4	6
Stoughton	259	651.4	52	63	16	0	10	11	4	9	0	0	1	7
Stow	39	435.5	6	8	1	0	2	1	0	1	0	0	1	1
Sturbridge	91	710.4	11	27	8	1	6	4	1	3	1	0	1	5
Sudbury	113	503.9	25	22	4	2	5	5	3	2	2	0	2	0
Sunderland	27	641.9	6	7	2	0	1	1	0	1	0	0	0	1
Sutton	59	663.3	6	12	2	1	2	1	2	4	2	0	3	0
Swampscott	121	540.2	31	34	6	4	4	5	1	5	1	0	1	2
Swansea	190	782.7	37	45	12	5	9	13	6	5	1	0	2	5
Taunton	584	824.8	117	118	32	6	17	33	9	13	7	1	7	29
Templeton	74	674.3	23	11	2	1	3	2	1	2	1	0	0	2
Tewksbury	291	687.7	46	80	23	4	11	19	11	6	3	1	0	11
Tisbury	33	615.8	1	9	2	4	2	2	0	0	1	0	0	1
Tolland	5	594.4	1	1	0	0	0	0	0	0	0	0	1	0
Topsfield	66	573.1	14	6	2	0	6	1	0	2	1	0	0	1
Townsend	66	769.1	8	18	3	3	2	2	4	2	0	0	1	4
Truro	30	790.4	3	9	1	1	2	3	2	0	0	0	0	0
Tyngsborough	63	579.2	12	16	3	0	1	3	1	1	0	0	2	3

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017														
CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Tyringham	3	-[4]	0	1	0	0	0	0	0	0	0	0	0	0
Upton	44	541.2	10	14	6	1	2	1	1	1	0	0	0	0
Uxbridge	114	612.4	23	30	7	2	6	2	3	4	0	0	1	1
Wakefield	247	714.4	52	59	12	6	8	10	4	7	4	1	6	8
Wales	21	933.9	6	2	1	0	2	3	0	1	0	0	0	1
Walpole	200	532.6	53	45	9	2	10	10	7	2	0	0	1	4
Waltham	438	613.5	91	117	31	10	13	23	14	6	3	1	5	15
Ware	119	923.3	27	27	8	2	4	7	1	2	2	0	4	2
Wareham	268	863.7	52	63	18	3	5	22	4	12	3	0	2	17
Warren	42	735.4	9	7	0	0	2	5	1	2	1	0	0	1
Warwick	12	1,820.00	2	1	0	0	0	0	0	1	0	0	0	0
Washington	2	-[4]	0	1	0	0	0	1	0	0	0	0	0	0
Watertown	275	630	54	72	15	2	14	9	5	4	0	0	3	8
Wayland	101	443.8	19	19	4	2	4	3	2	1	2	0	1	2
Webster	240	959.9	59	47	9	3	9	10	2	12	3	1	5	10
Wellesley	159	413.8	32	31	4	2	2	8	4	3	0	0	1	1
Wellfleet	26	540.1	1	5	1	0	1	1	3	0	0	0	1	2
Wendell	4	-[4]	2	0	0	0	0	0	0	0	0	0	0	0
Wenham	34	538.7	9	10	2	0	1	2	0	0	0	0	0	1
West Boylston	118	772.9	21	32	8	3	3	10	0	5	1	0	1	3
West Bridgewater	78	683	11	14	5	0	1	6	1	3	2	1	1	3
West Brookfield	46	723	9	5	0	1	1	6	2	1	1	0	1	0
West Newbury	29	606.7	3	7	3	0	2	2	0	0	0	0	0	0
West Springfield	316	826.7	73	60	19	4	9	15	5	7	1	0	2	10
West Stockbridge	12	716.5	2	4	1	0	2	0	0	0	0	0	0	0
West Tisbury	19	488.6	5	5	1	0	1	1	0	0	0	0	0	0
Westborough	168	609.7	29	30	5	2	9	8	3	3	2	0	2	3
Westfield	391	761.6	84	90	23	9	14	20	3	18	5	0	1	10
Westford	131	665.5	17	31	8	2	8	5	1	1	1	0	2	7
Westhampton	12	509.4	2	3	1	0	1	0	0	0	0	0	0	0
Westminster	60	775.5	13	14	2	0	2	1	3	0	1	0	0	2
Weston	126	641.6	24	18	1	4	7	3	4	2	0	0	1	2
Westport	178	653.5	33	41	9	2	8	5	2	3	1	0	5	6
Westwood	143	467.4	24	27	2	2	8	6	2	3	0	0	2	0

Table 39 (continued). Selected Causes of Death by Community, Massachusetts: 2017

CITY/TOWN	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[5]
Weymouth	605	822.4	131	145	41	9	21	23	10	15	0	2	8	33
Whately	19	836.8	6	5	1	0	0	1	0	0	0	0	0	0
Whitman	112	803.8	17	20	5	2	6	5	4	6	0	0	2	10
Wilbraham	148	532.7	25	32	7	2	6	3	3	4	1	0	1	0
Williamsburg	27	731	6	6	1	0	1	1	0	0	0	0	0	1
Williamstown	73	490.7	16	18	2	0	0	2	1	1	0	0	0	0
Wilmington	174	574.8	29	55	19	1	5	6	7	2	3	0	0	6
Winchendon	90	826	11	27	8	0	7	3	2	4	3	0	2	3
Winchester	167	455.6	28	42	12	2	12	6	2	5	0	0	2	1
Windsor	7	611	0	3	1	0	0	0	0	0	0	0	0	0
Winthrop	182	664.7	30	42	6	5	10	9	3	2	0	0	0	11
Woburn	408	684.2	85	88	21	2	18	22	7	11	2	0	6	16
Worcester	1,659	853.7	361	325	85	17	52	82	42	48	12	5	17	81
Worthington	9	543.3	1	3	0	1	0	0	0	0	0	0	0	0
Wrentham	121	766.6	31	21	3	1	2	5	2	1	0	0	0	5
Yarmouth	406	756.2	87	92	21	8	21	22	8	8	1	1	5	8
Unknown	9	-	4	0	0	0	0	1	1	0	0	1	0	0

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population and calculated using MDPH population estimates for 2010, which are the most up-to-date information available on the number of persons by age, race, and sex at the sub-state level. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes only female breast cancer. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (CLRD) (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. Rates based on 1 to 4 deaths are not calculated. 5. The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014). This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

Table 40. Selected Causes of Death by Community Health Network Area (CHNA), Massachusetts: 2017

CHNA Name	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioid-related[4]
Massachusetts	**58,844**	**675.7**	**12,165**	**12,937**	**3,074**	**894**	**2,370**	**2,843**	**1,323**	**1,434**	**423**	**180**	**692**	**1,965**
1. Community Health Network of Berkshire	1,619	769.4	360	329	87	26	72	84	28	45	14	3	21	29
2. Upper Valley Health Web (Franklin County)	892	712.8	186	211	60	11	40	44	20	28	5	0	9	15
3. Partnership for Health in Hampshire County (Northampton)	1,278	651.4	290	303	70	23	60	60	26	25	7	0	17	28
4. The Community Health Connection (Springfield)	2,917	751.8	636	591	135	52	120	129	59	57	29	15	41	61
5. Community Health Network of Southern Worcester County	1,283	816.0	271	296	72	12	47	81	25	33	13	1	19	43
6. Community Partners for Health (Milford)	1,268	641.5	259	302	78	17	45	64	32	35	7	2	16	22
7. Community Health Network of Greater Metro West (Framingham)	2,982	578.2	704	655	144	47	112	142	61	56	21	3	47	62
8. Common Pathways (Worcester)	2,800	750.1	584	615	163	32	91	156	63	76	22	5	27	108
9. Community Health Network of North Central Massachusetts	2,429	767.9	502	527	114	41	142	119	64	36	27	11	34	75
10. Greater Lowell Community Health Network	2,336	728.1	438	502	140	30	74	128	63	58	15	4	33	100
11. Greater Lawrence Community Health Network	1,576	682.1	279	317	74	19	68	71	27	40	9	10	22	67
12. Greater Haverhill Community Health Network	1,375	718.4	267	291	76	18	58	89	30	32	15	2	25	62
13. Community Health Network North (Beverly/Gloucester)	1,174	666.7	237	271	65	11	46	62	17	25	6	1	11	33
14. North Shore Community Health Network	2,926	693.8	639	592	138	41	108	128	71	59	12	13	37	132
15. Northwest Suburban Health Alliance	1,905	542.6	384	420	94	19	83	85	36	53	13	1	22	38
16. North Suburban Health Alliance (Medford/Malden/Melrose)	2,235	629.2	464	501	122	34	79	85	57	63	15	7	29	87
17. Greater Cambridge/Somerville Community Health Network	1,668	551.4	327	426	84	42	62	63	35	34	2	1	24	42
18. West Suburban Health Network (Newton/Waltham)	2,120	522.2	451	488	102	46	86	82	42	49	5	2	20	31
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	5,202	626.0	999	1,127	228	89	221	206	164	108	29	59	42	252
20. Blue Hills Community Health Alliance (Greater Quincy)	3,791	658.5	824	824	192	74	165	161	70	92	19	6	34	128
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	1,735	800.2	350	369	93	24	59	102	32	58	14	7	11	46
22. Greater Brockton Community Health Network	2,101	760.5	452	469	118	21	71	97	51	65	26	9	20	97
23. South Shore Community Health Network	1,739	678.7	317	450	122	28	58	86	35	50	16	0	16	74
24. Greater Attleboro-Taunton Health & Education Response	2,361	742.3	454	542	150	38	70	144	54	50	27	1	29	100
25. Partners for Healthier Communities	1,667	827.0	351	325	78	23	62	96	43	63	9	2	28	71
26. Greater New Bedford Community Health Network	2,246	779.2	445	445	118	30	91	131	46	70	23	11	22	91
27. Cape Cod and Islands Health Network	3,210	671.6	691	749	157	46	180	147	71	74	23	3	36	71

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes only female breast cancer. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014). This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

Table 41. Selected Causes of Death by County, Massachusetts: 2017

County	Total Deaths	Age-Adjusted Death Rate[1]	Heart Disease	Total Cancer	Lung Cancer	Female Breast Cancer[2]	Stroke	CLRD[3]	Diabetes	Influenza & Pneumonia	Motor Vehicle	Homicide	Suicide	Opioids-related[4]
Massachusetts	**58,844**	**675.7**	**12,165**	**12,937**	**3,074**	**894**	**2,370**	**2,843**	**1,323**	**1,434**	**423**	**180**	**692**	**1,965**
Barnstable	2,940	694.2	628	664	159	40	151	178	57	72	28	1	25	78
Berkshire	1,444	695.3	319	299	93	16	72	71	36	24	18	2	15	35
Bristol	5,324	748.5	1,112	1,092	301	58	224	292	131	148	57	10	61	239
Dukes	158	627.3	29	42	10	2	6	9	4	7	0	0	4	3
Essex	6,699	666.0	1,406	1,406	339	84	287	337	154	130	36	18	73	262
Franklin	719	732.1	156	179	40	11	40	43	10	15	8	2	8	13
Hampden	4,444	747.7	1,019	908	232	60	188	224	96	92	47	20	37	127
Hampshire	1,224	632.7	274	287	71	22	51	43	21	32	9	1	16	34
Middlesex	11,469	605.1	2,406	2,654	629	167	454	465	272	240	76	16	159	387
Nantucket	71	558.9	21	17	5	0	6	6	2	2	0	0	1	2
Norfolk	5,865	623.3	1,247	1,314	324	80	244	243	110	121	35	11	57	204
Plymouth	4,735	726.8	993	1,095	280	68	196	248	78	120	46	8	54	186
Suffolk	4,769	645.7	883	1,144	292	77	183	185	144	73	49	40	50	231
Worcester	7,088	725.9	1,430	1,589	393	90	366	332	152	167	57	11	76	233

1. Rates are per 100,000 population age-adjusted to the 2000 US Standard Population. Data presented in this table are classified according to ICD-10. Please see Appendix for a list of ICD-10 codes used in this table. 2. Includes only female breast cancer. 3. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title). 4. The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014). This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

TECHNICAL NOTES

DATA SOURCES

Data for this document are derived from Massachusetts death certificates, Massachusetts birth certificates, the US Census, the Massachusetts Institute for Social and Economic Research (MISER) (population data pre-2000), and the National Center for Health Statistics (NCHS).

CHANGES TO MORTALITY DATA, EFFECTIVE 1999

Beginning with data year 1999, two major changes in Federal classification and tabulation procedures occurred that affects the tabulation and analyses of mortality data over time. First, a new revision for classifying causes of death was implemented: The International Classification of Diseases, Tenth Revision (ICD-10) replaced the International Classification of Diseases, Ninth Revision (ICD-9) for coding all mortality data. Second, a new standard population for the tabulation of age-adjusted mortality rates was also implemented.

CHANGES TO THE PRESENTATION OF RACE AND ETHNICITY DATA

The 2003 revision of the Standard Certificate of Death allows the reporting of more than one race in accordance with the revised standards issued by the Office of Management and Budget (OMB) in 1997. The revised standards require federal data collection programs to allow respondents to select *one or more race categories*. In order to provide uniformity and comparability of the data during the transition period, before multiple-race data are available for all reporting areas, it is necessary to "bridge" the responses of those who reported more than one race to a single-race. The method used to bridge responses for those who report more than one race to a single race is based on a procedure whereby multiple races are assigned to the smallest minority group first (i.e. Asian and White becomes Asian or Black and Native American becomes Native American). All multiple races that include Hispanic will be assigned as Hispanic and this group also includes all respondents who reported Hispanic ethnicities as well.

Decedent Race

☐ American Indian/Alaska Native (specify tribal nation): _____ ☐ Asian ☐ Black ☐ Guamanian or Chamorro ☐ Hispanic/Latino/Black ☐ Hispanic/Latino/White ☐ Hispanic/Latino/Other(specify): _____	☐ Native Hawaiian ☐ Samoan ☐ White ☐ Other Pacific Islander (specify):_____ ☐ Other race not listed (specify): _____ ☐ Refused ☐ Not obtainable ☐ Unknown

Decedent Race

Enter race to appear on death certificate: _____

Decedent Ethnicity

☐ African (specify): _____	☐ Laotian
☐ African-American	☐ Mexican, Mexican American, Chicano
☐ American	☐ Middle Eastern (specify): _____
☐ Asian Indian	☐ Native American (specify tribal nation(s)): _____
☐ Brazilian	☐ Portuguese
☐ Cambodian	☐ Puerto Rican
☐ Cape Verdean	☐ Russian
☐ Caribbean Islander (specify): _____	☐ Salvadoran
☐ Chinese	☐ Vietnamese
☐ Colombian	☐ Other Asian (specify): _____
☐ Cuban	☐ Other Central American (specify): _____
☐ Dominican	☐ Other Pacific Islander (specify): _____
☐ European (specify): _____	☐ Other Portuguese (specify): _____
☐ Filipino	☐ Other South American (specify): _____
☐ Guatemalan	☐ Other ethnicity (ies) not listed (specify): _____
☐ Haitian	☐ Refused
☐ Honduran	☐ Not obtainable
☐ Japanese	☐ Unknown
☐ Korean	

POPULATION ESTIMATES

State, County, and Small Area Population Estimates 2011-2020, version 2017, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

LIMITATIONS OF SMALL NUMBERS

Cells in some tables contain small numbers. Rates and proportions based on fewer than five observations are suppressed, and trends based upon small numbers should be interpreted cautiously.

APPLYING COMPARABILITY RATIOS TO EXAMINE TRENDS IN MORTALITY

Beginning with 1999, mortality data are coded according to the International Classification of Diseases Tenth Revision (ICD-10). Due to the changes in coding rules, comparison of mortality trends over time using different revisions of ICD is challenging. A method was devised to assess if changes in causes of death are “real” changes, or due to the new classification system. Using this method, death data for 1996 were coded twice; once according to ICD-9 and again according to ICD-10. A comparability ratio (CR) was then calculated by dividing the number of deaths coded according to ICD-10 by the number of deaths coded according to the most similar codes in ICD-9 (please refer to Table A4. Preliminary Comparability Ratios for a list of codes and CR used in this publication).

A CR of 1.00 indicates that the same number of deaths was assigned to a cause of death whether ICD-9 or ICD-10 was used. A CR of less than 1.00 results from 1) a decrease in the number of deaths assigned to a cause in ICD-10 compared with ICD-9 or 2) the cause described in ICD-10 is only a part of the ICD-9 title to which it is being compared. A CR of more than 1.00 results from 1) an increase in the assignments of deaths to a cause in ICD-10 compared with ICD-9 or 2) the ICD-10 title is broader than the ICD-9 title to which it is being compared.

EXAMPLE: **Influenza and Pneumonia[1] Deaths: Massachusetts, 1996-2000**

Year	Age-adjusted rate[2]	Comparability Ratio	Comparability Modified Rate (=Age-Adjusted Rate*Comparability Ratio)
1996	41.5	0.6982	29.0
1997	39.1	0.6982	27.3
1998	40.2	0.6982	28.1
1999	30.3		
2000	29.3		

1. Influenza and pneumonia defined as ICD-9: 480-487 for years 1996-1998 and ICD-10: J10-J18 for year 1999 and 2000.
2. Age-adjusted to the 2000 US standard population, per 100,000.

If you look only at the age-adjusted rate over time, not taking the ICD coding changes into account, it appears that deaths from influenza and pneumonia have decreased between 1996-1999. However, because the coding rules changed between ICD-9 and ICD-10 revisions, we need to apply the comparability ratio to the rates for 1996-1998. (This is done by multiplying the age-adjusted rate by the comparability ratio.) Now we can make a fairer comparison and examine the changes between the comparability modified rate and the 1999 or 2000 rate. We see that deaths to influenza and pneumonia have remained constant between 1996-2000, and have actually increased between 1998 and 1999 (28.1 to 30.3 per 100,000, respectively) after taking the changes in the classification system into account.

PLEASE NOTE: the comparability ratios used in this report are based on the Preliminary Comparability Study conducted by the National Center for Health Statistics (NCHS), February 2001, and are subject to change once the Final Comparability Study is completed.

TESTS OF STATISTICAL SIGNIFICANCE

Beginning with *Massachusetts Deaths 2004,* statistics presented in the text section have been tested to determine whether they differ significantly from a target statistic. For example, the number of deaths in 2008 was compared with the number of deaths in 2007 to determine whether their difference was unlikely to have occurred by chance. When a difference is unlikely to have occurred by chance, it is referred to as "significant."

Note: With respect to statistical difference, the language of this year's report differs from the language of reports prior to 2004, and caution must be used when comparing the text of previous reports with this year's report.

In testing for statistical significance, we have used the testing methods from the National Center for Health Statistics (NCHS). These methods are presented in the following document:

National Vital Statistics Reports, Volume 52, Number 10

Births: Final Data for 2002
by Joyce A. Martin, M.P.H.; Brady E. Hamilton, Ph.D.; Paul D. Sutton, Ph.D.; Stephanie J. Ventura, M.A.; Fay Menacker, Dr. P.H.; and Martha L. Munson, M.S.;
From the Division of Vital Statistics, NCHS. (Technical Notes, "Significance testing" section begins on page 110).

This document is available from the following website:
http://www.cdc.gov/nchs/products/pubs/pubd/nvsr/52/52-23.htm

For comparisons of more than 100 events, whether they are rates, proportions, or numbers, the binomial distribution is assumed, and confidence intervals are examined to see whether they overlap (Refer to the "Confidence Intervals" section in the next page for an explanation of using confidence intervals to determine statistical significance). When the number of events is less than 100, a Poisson distribution is assumed, and confidence intervals are constructed based upon the Poisson distribution. For more details and exact formulas for calculating confidence intervals or other tests of statistical significance, refer to the publication listed above.

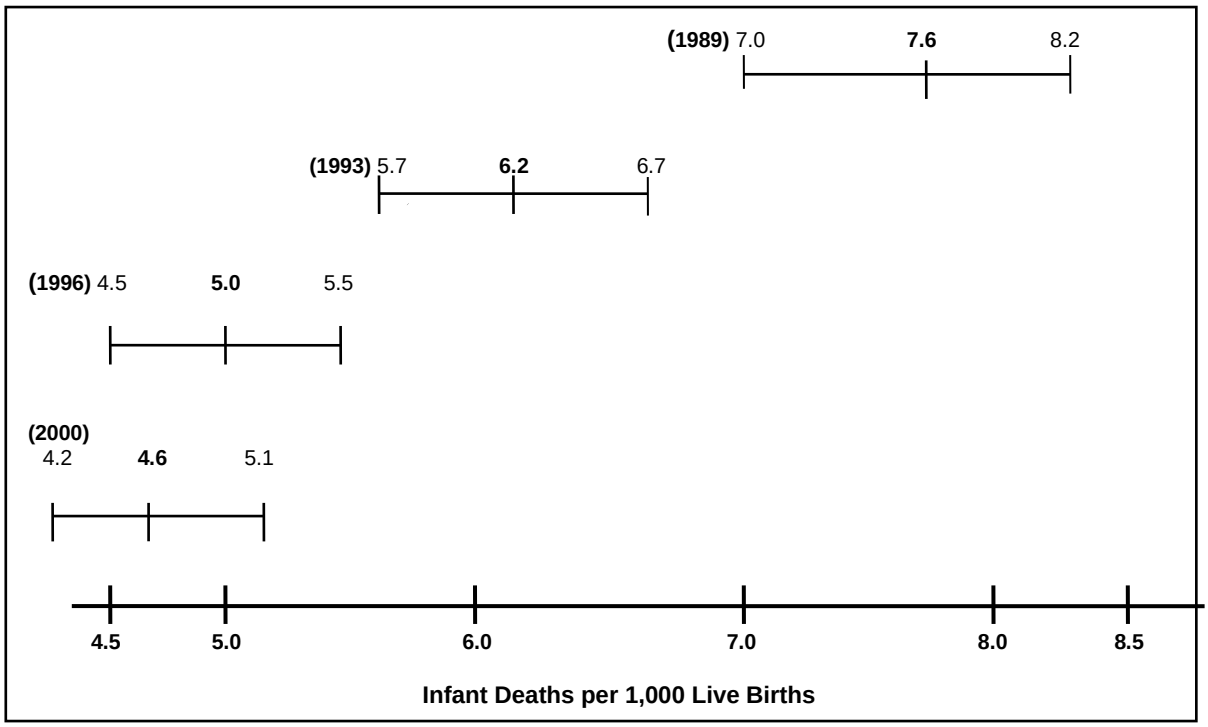
When two statistics are determined to differ significantly, they are referred to in the text as being "significantly" different, either lower or higher than the statistic of comparison.

CONFIDENCE INTERVALS

The confidence interval (CI) provides a measure of rate stability and a basis for comparing rates to determine if they are statistically different. Rates can be compared for the same group in different years or for different groups in the same year. The width of the CI reflects the stability of the rate. For example, a narrow CI reflects high stability, and a wide CI reflects low stability. If the CIs around two rates being compared do not overlap, the difference between the two rates is statistically significant. The following table and chart illustrate the concept of statistically significant differences using actual infant mortality data from 1989, 1993, 1996, and 2000.

Comparison of Infant Mortality Rates and Confidence Intervals for Selected Years

Year	IMR (per 1,000 births)	95% Confidence Interval
1989	7.6	(7.0-8.2)
1993	6.2	(5.7-6.7)
1996	5.0	(4.5-5.5)
2000	4.6	(4.2-5.1)



The difference between the 1993 IMR and 1996 IMR is statistically significant – the confidence intervals do not overlap. The same is true for the differences between the 1989 IMR and each annual IMR for 1993, 1996, and 2000. However, the difference between the 1996 and 2000 IMRs is not statistically significant, since their confidence intervals overlap.

GLOSSARY

Age-Adjusted Rate
A summary rate designed to minimize the distortions created by differences in age distribution when comparing rates for populations with different age compositions. Age-adjusted rates are useful when comparing death rates from different populations or in the same population over time. For example, if one wished to compare the 1998 death rates between Barnstable County and Hampshire County, the age-adjusted formula would account for the fact that 24% of the Barnstable County residents were 65 years of age or older, whereas only 11% of the Hampshire County residents were in this age group.

Age-adjusted rates are calculated by weighting the age-specific rates for a given year by the age distribution of a standard population. The weighted age-specific rates are then added to produce the adjusted rate for all ages combined. (Please see example below).

The 2000 US projected population is used as the standard population in this document for consistency with data published by the National Center for Health Statistics (NCHS). **Only rates using the same standard population can be compared**. All age-adjusted rates published in this report have been re-calculated using the 2000 US standard population. These rates should NOT be compared with age-adjusted rates previously published that used the 1940 US standard population.

Example: Calculation of 1999 Age-Adjusted Mortality Rate
Massachusetts: All Causes of Death

A	B	C	D	E	F	G
Age group (in years)	# of deaths (1999)	Population (1998)	1940 US standard	2000 US standard	Age-adjusted rate (using1940 standard) =[((B/C)*D)*100,000]	Age-adjusted rate (using 2000 standard) =[((B/C)*E)*100,000]
< 1	418	79,860	0.015343	0.013818	8.0	7.2
1-4	65	320,000	0.064718	0.055317	1.3	1.1
5-14	100	806,670	0.170355	0.145565	2.1	1.8
15-24	407	883,830	0.181677	0.138646	8.4	6.4
25-34	701	1,005,337	0.162066	0.135573	11.3	9.5
35-44	1,696	1,019,365	0.139237	0.162613	23.2	27.1
45-54	2,870	818,660	0.117811	0.134834	41.3	47.3
55-64	4,561	495,555	0.080294	0.087247	73.9	80.3
65-74	9,782	442,003	0.048426	0.066037	107.2	146.1
75-84	17,397	299,482	0.017303	0.044842	100.5	260.5
85+	17,765	120,501	0.002770	0.015508	40.8	228.6
Total					**418.0**	**815.9**

Age-Specific Rate
A rate for a specified age group. Age-specific death rates are calculated by dividing the number of deaths for a specific age group by its population for that year. The numerator and denominator refer to the same age group.

$$\text{Age-specific death rate (ages 25-34)} = \frac{\text{Number of deaths among residents ages 25-34 in a given year}}{\text{population ages 25-34 in that year}} \times 100{,}000$$

Community Health Network Areas (CHNA)
The Department of Public Health, in collaboration with health service providers, coalition members, and interested citizens, has designated 27 areas for community health planning. It is the Department's intention to foster in each of these areas the development of Community Health Networks – consortia of health care providers, human service agencies, schools, churches, youth, parents, elders, advocacy groups, and individual consumers -- to address the health needs of the community. CHNAs mobilize around key health issues impacting the community, promote prevention efforts, enhance access to care, provide opportunities for more collaboration among agencies, and create a client-centered, outcome-oriented health service delivery system. CHNAs also promote efficiency in service delivery by working to reduce duplication and overlap, and by identifying gaps in service. These community coalitions participate in monitoring outcomes and progress of strategies and responses to those health needs. To determine which cities and towns make up a particular CHNA, please see Table A8, which provides the CHNA code for each city and town based on the geographic definitions established in 1997.

Comparability Modified Rate
A rate designed to assist in the analysis of mortality trends between revisions of the International Classification of Diseases (ICD). A comparability-modified rate is calculated by multiplying the cause-specific comparability ratio by the cause-specific rate for years 1994-1998. Comparability modified rates should be used to compare trends between causes of death in 1994-1998 with causes of death in 1999 forward.

Comparability Ratio (CR)
A factor used to adjust mortality statistics for causes of death classified in ICD-9 to be comparable with mortality statistics classified in ICD-10. It is calculated by dividing the number of deaths for a selected cause of death classified by the new revision (i.e. ICD-10) by the number of deaths for a selected cause of death classified by the old revision (i.e. ICD-9).

More specifically, the CRs used in this report were calculated by the National Center for Health Statistics (NCHS) based on a national sample of death records. Death records for 1996 were double coded, once according to ICD-9 and again according to ICD-10. Secondly, the leading causes of death were grouped according to ICD-10 titles, using the ICD-10 codes for data coded in ICD-10, and the most similar ICD-9 titles for data coded in ICD-9. Finally, the number of deaths coded in ICD-10 were divided by the number of deaths in ICD-9 to produce a CR for the cause of death.

A CR of 1.00 indicates that the same number of deaths was assigned to a cause of death whether ICD-9 or ICD-10 was used.

A CR of less than 1.00 results from 1) a decrease in the number of deaths assigned to a cause in ICD-10 compared with ICD-9 or 2) the cause described in ICD-10 is only a part of the ICD-9 title to which it is being compared.

A CR of more than 1.00 results from 1) an increase in the assignments of deaths to a cause in ICD-10 compared with ICD-9 or 2) the ICD-10 title is broader than the ICD-9 title to which it is being compared.

Preliminary comparability ratios supplied by the National Center for Health Statistics (NCHS) in February 2001 are used in this report (see Table A4 and A5).

See also, comparability modified rate.

Crude Death Rate
An estimate of the proportion of a population that died during the year. The numerator is the number of persons who died during the year and the denominator is the size of the population. The death rate in a population is calculated by the formula:

$$\text{Crude death rate} = \frac{\text{Number of resident deaths in a year}}{\text{Number of residents}} \times 100{,}000$$

Death Certificate
A vital record can be signed by a licensed physician doctor (which includes ME's) or a Nurse Practitioner. Starting in 2016 Physician Assistants (PA) could also sign. Some of the data elements found on the death certificate are cause of death, decedent's name, gender, birth date, place of residence, and place of occurrence. (A copy of the Massachusetts death certificate used is in the Appendix). In a properly completed death certificate, the immediate cause of death is recorded on line 29a. The other mentioned causes are written on lines 29 b-d. The underlying cause of death is the disease or injury that initiated the events leading to the death. All causes of death are data entered and processed by a software program supplied by NCHS. This software assigns the appropriate ICD-10 codes. Trained nosologists review the ICD-10 codes assigned.

International Classification of Diseases, Ninth Revision (ICD-9)
The International Classification of Diseases (ICD) classifies mortality information for statistical purposes. The ICD was first used in 1900 and has since been revised about every 10 years, with the exception of the ICD-9, which was in use between 1979-1998. Mortality data in this report was coded using ICD-10 codes, though a comparison between these ICD-10 codes and their corresponding ICD-9 codes is presented in Tables A1-A6.

Because of coding changes between the Ninth and Tenth revision, caution should be used when comparing data coded under ICD-9 and ICD-10.

International Classification of Diseases, Tenth Revision (ICD-10)
Since 1999, the tenth revision of the International Classification of Diseases has been used to code mortality data. For a list of ICD-10 codes used in the publication, please see Tables A1, A4, and A5.

Because of coding changes between the Ninth and Tenth revision, caution should be used when comparing data coded under ICD-9 and ICD-10.

Life Expectancy at Birth
Life expectancy at birth is based on the expected age at death for a newborn infant, based upon the actual experience of mortality of the population in Massachusetts.

NCHS
National Center for Health Statistics (US Department of Health and Human Services, Centers for Disease Control and Prevention).

Occurrence Death
Occurrence deaths include all deaths that occur within the state, including deaths of nonresidents. An interstate exchange agreement among the 50 states, Washington, DC, Canada, the US Virgin Islands, and Guam provides for exchanges of copies of birth and death records. These out-of-state records are used for statistical purposes only and allow each state or province to track the births and deaths of residents.

Opioid
The term opioid designates a class of drugs derived naturally from the opium poppy (opium, morphine, codeine), synthesized or derived from a natural opiate (heroin, oxycodone, hydrocodone), or manufactured synthetically with a chemical structure similar to opium (fentanyl, methadone). (Opioid Overdose Response Strategies in Massachusetts, MDPH, 2014)

This report combines all opioid overdoses since classification of specific drugs can be difficult. For example, many deaths related to heroin cannot be specifically coded as such due to the fast metabolism of heroin into morphine, as well as, the possible interaction of multiple drugs.

Other and Unspecified Narcotics (T40.6)
The Injury Surveillance Workgroup (ISW7) Consensus Recommendations for national and state poisoning surveillance (Safe States Alliance, 2012) states that this category is intended for other and unspecified drugs classified pharmacologically as narcotics (opioids/opiates). However, in practice it may also be used for drugs classified legally as narcotics such as cocaine. The proportion of this category made up by opioids/opiates varies by jurisdiction, so inclusion of this code depends on more detailed analysis of death certificate text and/or medical examiner records. Reviews in Massachusetts indicate that most deaths classified as T40.6 were opioid-related overdose deaths. For that reason, we include T40.6 in our opioid-related definition.

Premature Mortality Rate
Premature mortality rate (PMR) measures the rate of premature death, that is, death before the age of 75 years, and it is given as a rate per 100,000 and it is adjusted to the 2000 US population. PMR is considered the best single measure to reflect the health status of a population.

Resident Death
The death of a person whose usual place of residence or permanent address (as reported by the informant) is in one of the 351 cities or towns of Massachusetts, regardless of where the death took place. Unless otherwise noted, all data in this publication are resident data. An interstate exchange agreement among the 50 states, Washington, DC, Canada, the US Virgin Islands, and Guam provides for exchange of copies of birth and death records. These records are used for statistical purposes only and allow each state or province to track the births and deaths of residents.

Underlying Cause of Death

The disease or injury that initiated the series of events leading to death, or the circumstances of the unintentional or intentional injury that resulted in the death. The underlying cause of death is used for all analyses published in this report except for diabetes mortality.

Table A1. ICD-10 and ICD-9 Codes Used in this Publication

(Sorted by ICD-10 Codes)

Cause of Death	ICD-10 Code	ICD-9 Code
Infectious and Parasitic Diseases	A00-B99	001-139
Septicemia	A40-A41	038
Human Immunodeficiency Virus (HIV) disease	B20-B24	042-044
Cancer (Malignant Neoplasms)	C00-C97	140-208
of esophagus	C15	150
of stomach	C16	151
of colon, rectum, rectum and anus	C18-C21	153-154, 159.9
of pancreas	C25	157
of trachea, bronchus and lung	C33-C34	162
of female breast	C50	174
of cervix uteri	C53	180
of corpus uteri and uterus, part unspecified	C54-C55	179,182
of ovary	C56	183.0
of prostate	C61	185
of kidney and renal pelvis	C64-C65	189.0-189.1
of bladder	C67	188
of meninges, brain & other parts of central nervous system	C70-C72	191-192
Hodgkin Disease	C81	201
Non-Hodgkin lymphoma	C82-C85	200, 202 (except 202.4)
Leukemia	C91-C95	202.4, 204-208
Multiple myeloma and immunoproliferative neoplasms	C88, C90	203
Diabetes Mellitus	E10-E14	250
Alzheimer's Disease	G30	331.0
Heart Disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404¨29
Stroke (Cerebrovascular Disease)	I60-I69	430-38
Influenza and Pneumonia	J10-J18	480¨87
Chronic Lower Respiratory Diseases[1]	J40-J47	490¨96
Chronic Liver Disease and Cirrhosis	K70, K73-K74	571
Nephritis	N00-N07, N17-N19, N25-N27	580-589
Congenital Malformations, Deformations, and Chromosomal Abnormalities	Q00-Q99	740-759
Certain Conditions Originating in the Perinatal Period (Perinatal Conditions)	P00-P96	760-779
Ill-defined Conditions	R00-R99	780-797, 798.1-798.9, 799
Sudden infant death syndrome (SIDS)	R95	798.0
External Causes of Injuries and Poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999
Accidents (Unintentional Injuries)	V01-X59, Y85-Y86	E800-E949
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825
Unintentional non-transport injuries	W00-X59, Y86	E850-E869, E880-E928, E929.2-E929.9
Suicide	X60-X84, Y87.0	E950-E959
Homicide	X85-Y09, Y87.1	E960-E969
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989

1. The title of this cause of death has changed between ICD-10 and ICD-9. Chronic Lower Respiratory Disease (ICD-10 title) corresponds to Chronic Obstructive Pulmonary Disease (COPD) (ICD-9 title).

Table A2. ICD-10 Injury Codes Used in this Publication

Cause of Death	ICD-10 Code
Suicide	X60-X84, Y87.0
Poisoning	X60-X69
Hanging, strangulation or suffocation	X70
Firearm	X72-X74
Other and unspecified	Residual
Homicide	X85-Y09, Y87.1
Firearm	X93-X95
Cut or pierce	X99
Other and unspecified	Residual
Unintentional Injuries (Accidents)	V01-X59, Y85-Y86
Falls	W00-W19
Hanging, strangulation or suffocation	W75-W84
Drowning or submersion	W65-W74
Smoke, fire and flames and contact with heat and hot substances	X00-X19
Poisoning	X40-X49
Firearm	W32-W34
Motor Vehicle-related	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Injury to pedestrian	V02-V04, V09.0, V09
Injury to pedal cyclist	V12-V14, V19.0, V19.2, V19.4, V19.5, V19.6
Injury to motorcyclist	V20-V29
Injury to occupant	V30-V79, V80.3, V80.4, V80.5, V81.0,V81.1, V82.0, V82.1, V83-V86
Other and unspecified	Residual
Other and unspecified	Residual
Events of Undetermined Intent	Y10-Y34, Y87.2, Y89.9
Poisoning	Y10-Y19
Drowning or submersion	Y21
Other and unspecified	Residual
Legal Intervention	Y35-Y36, Y89.0, Y89.1
Firearm	Y35.0
Adverse Effects	Y40-Y59, Y60-Y84, Y88
Drugs	Y40-Y59, Y88.0
Medical Care	Y60-Y84, Y88.1, Y88.2, Y88.3

Table A3. ICD-10 Codes for Selected Healthy People 2020 Mortality Objectives[1] Used in this Publication

(Sorted by Objective Number)

Cause of Death	ICD-10 Code
Cancer (All Sites)	C00-C97
Lung cancer	C33-C34
Female breast cancer	C50
Uterine Cervix cancer	C53
Colorectal cancer	C18-C21
Oropharyngeal cancer	C00-C14
Prostate cancer	C61
Malignant melanoma	C43
Coronary Heart Disease	I11, I20-I25
COPD	J40-J44
Stroke	I60-I69
HIV Infection	B20-B24
Firearm-related Deaths	W32-W34, X72-X74, Y22-Y24, Y35.0, X93-X95
Poisoning	X40-X49, X60-X69, X85-X90, Y10-Y19, Y35.2
Hanging, Strangulation or Suffocation	W75-W84, X70, X91, Y20
Unintentional Injuries (Accidents)	V01-X59, Y85-Y86
Motor Vehicle-related	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Residential Fire Deaths	X00, X02
Falls	W00-W19, X80, Y01, Y30
Drownings	W65-W74, X71, X92, Y21
Homicides	X85-Y09, Y87.1
Birth Defects	Q00-Q99
Congenital Heart and Vascular Defects	Q20-Q24
Sudden Infant Death Syndrome (SIDS)	R95
Suicide	X60-X84, Y87.0
Asthma	J45-J46
Motor-vehicle crash deaths	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2
Cirrhosis	K74
Drug Induced Deaths	F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F17.0, F17.3-F17.5, F17.7-F17.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9,X40-X44,X60-64, X85,Y10-Y14

1. These Healthy People 2020 objectives use underlying cause of death data.

Table A4. Preliminary Comparability Ratios

Cause of Death	ICD-10 Code	ICD-9 Code (most similar title)	Comparability Ratio
Infectious and Parasitic Diseases	**A00-B99**		**NA**
Septicemia	A40-A41	038	1.1949
Human Immunodeficiency Virus (HIV) disease	B20-B24	042-044	1.0637[1] and 1.1448[2]
Cancer (Malignant Neoplasms)	C00-C97	140-208	1.0068
of esophagus	C15	150	0.9965
of stomach	C16	151	1.0063
of colon, rectum, rectum and anus	C18-C21	153-154	0.9993
of pancreas	C25	157	0.9980
of trachea, bronchus and lung	C33-C34	162	0.9837
of breast	C50	174-175	1.0056
of cervix uteri	C53	180	0.9871
of corpus uteri and uterus, part unspecified	C54-C55	179,182	1.0260
of ovary	C56	183.0	0.9954
of prostate	C61	185	1.0134
of kidney and renal pelvis	C64-C65	189.0-189.1	1.0000
of bladder	C67	188	0.9968
of meninges, brain & other parts of central nervous system	C70-C72	191-192	0.9691
Hodgkin Disease	C81	201	0.9855
Non-Hodgkin lymphoma	C82-C85	200, 202	0.9781
Leukemia	C91-C95	204-208	1.0119
Multiple myeloma and immunoproliferative neoplasms	C88, C90	203	1.0383
Diabetes Mellitus	E10-E14	250	1.0082
Alzheimer's Disease	G30	331.0	1.5536
Heart Disease	I00-I09, I11, I13, I20-I51	390-398, 402, 404, 410-429	0.9858
Stroke (Cerebrovascular Disease)	I60-I69	430-434, 436-438	1.0588
Influenza and Pneumonia	J10-J18	480-487	0.6982
Chronic Lower Respiratory Diseases	J40-J47	490-494,496	1.0478
Chronic Liver Disease and Cirrhosis	K70, K73-K74	571	1.0367
Nephritis	N00-N07, N17-N19, N25-N27	580-589	1.2320
Congenital Malformations, Deformations, and Chromosomal Abnormalities	Q00-Q99	740-759	0.8470
Certain Conditions Originating in the Perinatal Period (Perinatal Conditions)	P00-P96	760-771.2, 771.4-779	1.0658
External Causes of Injuries and Poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999	NA
Accidents (Unintentional Injuries)	V01-X59, Y85-Y86	E800-E869, E880-E929	1.0305
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825	0.9754[3]
Non-transport injuries	W00-X59, Y86	E850-E869, E880-E928, E929.2-E929.9	1.0763
Suicide	X60-X84, Y87.0	E950-E959	0.9962
Homicide	X85-Y09, Y87.1	E960-E969	0.9983
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989	*

Source: National Center for Health Statistics, Preliminary Comparability Study. February 2001. NA: not available *: not reliable
Note. Please refer to Appendix for an example of how to apply comparability ratios.

1. Comparability Modified number and rate based on preliminary comparability ratios (CR) from NCHS based on 1996 data (February 2001). 2. Comparability Modified number and rate based on preliminary comparability ratios (CR) from NCHS based on 1998 data (revised June 2001). 3. This is the revised comparability ratio for motor vehicle-related injuries, effective May 2001.

Table A5. Preliminary Comparability Ratios: Causes of Infant Death

Cause of Death	ICD-10 Code	ICD-9 Code (most similar title)	Comparability Ratio
Certain Infectious and Parasitic Diseases	A00-B99	001-033, 034.1-134, 136-139, 771.3	0.7339
Septicemia	A40-A41	038	1.3802
Human Immunodeficiency Virus (HIV) disease	B20-B24	042-044	1.0455
Cancer (Malignant Neoplasms)	C00-C97	140-208	1.0435
Influenza and Pneumonia	J10-J18	480-487	0.7624
Certain Conditions Originating in the Perinatal Period (Perinatal Conditions)	P00-P96	760-771.2, 771.4-779	1.0581
Newborn affected by maternal complications of pregnancy	P01	761	1.0295
Newborn affected by complications of placenta, cord and membranes	P02	762	1.0470
Disorders relating to short gestation and low birthweight	P07	765	1.1060
Intrauterine hypoxia and birth asphyxia	P20-P21	768	1.4477
Respiratory distress of newborn	P22	769	1.0257
Other respiratory conditions originating in perinatal period	P23-P28	770	0.8455
Infections specific to the perinatal period	P35-P39	771.0-771.2, 771.4-771.8	1.0199
Neonatal hemorrhage	P50-P52, P54	772	1.4369
Congenital Malformations, Deformations, and Chromosomal Abnormalities	Q00-Q99	740-759	0.9064
Anencephaly and similar malformations	Q00	740	1.0000
Congenital malformations of heart	Q20-Q24	745-746	0.9951
Congenital malformations of respiratory system	Q30-Q34	748	0.6322
Congenital malformations of digestive system	Q35-Q45	749-751	*
Congenital malformations of genitourinary system	Q50-Q64	752-753	0.9432
Congenital malformations of musculoskeletal system	Q65-Q85	754-757	0.8650
Sudden Infant Death Syndrome (SIDS)	R95	798.0	1.0362
External Causes of Injuries and Poisonings (intentional, unintentional and of undetermined intent)	V01-Y89	E800-E999	NA
Accidents (Unintentional Injuries)	V01-X59	E800-E869, E880-E929	1.0246
Motor Vehicle-related injuries	V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83-V86, V87.0-V87.8, V88.0-V88.8, V89.0, V89.2	E810-E825	0.9167
Homicide	X85-Y09	E960-E969	0.9481
Injuries of undetermined intent	Y10-Y34,Y87.2,Y89.9	E980-E989	*

Source: National Center for Health Statistics, Preliminary Comparability Study. February 2001. NA: not available *: not reliable
Note: Please refer to Appendix for an example of how to apply comparability ratios.

Table A6. Causes of Death Considered Amenable to Health Care

Cause of Death Considered Amenable to Health Care	Age	ICD-10 Code
Intestinal infections	0-14	A00-A09
Tuberculosis	0-74	A15-A19, B90
Other infectious (Diphtheria, Tetanus, Poliomyelitis)	0-74	A36, A35,A80, A40-A41
Whooping cough	0-14	A37
Measles	1 to 14	B05
Malignant neoplasm of colon and rectum	0-74	C18-C21
Malignant neoplasm of skin,	0-74	C44
Malignant neoplasm of breast,	0-74	C50
Malignant neoplasm of cervix uteri	0-74	C53
Malignant neoplasm of cervix uteri and body of the uterus	0-44	C54, C55
Malignant neoplasm of testis	0-74	C62
Hodgkin's disease	0-74	C81
Leukemia	0-44	C91-C95
Diseases of the thyroid	0-74	E00-E07
Diabetes mellitus	0-49	E10-E14
Epilepsy	0-74	G40-G41
Chronic rheumatic heart disease	0-74	I05-I09
Hypertensive disease	0-74	I10-I13, I15
Ischemic heart disease	0-74	I20-I25
Cerebrovascular disease	0-74	I60-I69
All respiratory diseases (excl. pneumonia/influenza)	1 to 14	J00-J09, J20-J99
Influenza	0-74	J10-J11
Pneumonia	0-74	J12-J18
Peptic ulcer	0-74	K25-K27
Appendicitis	0-74	K35-K38
Abdominal hernia	0-74	K40-K46
Cholelithiasis & cholecystitis	0-74	K80-K81
Nephritis and nephrosis	0-74	N00-N07, N17-N19, N25-N27
Benign prostatic hyperplasia	0-74	N40
Misadventures to patients during surgical and medical care	All	Y60-Y69, Y83-Y84
Maternal deaths	All	O00-O99
Congenital cardiovascular anomalies	0-74	Q20-Q28
Perinatal deaths, all causes excluding stillbirths	All	P00-P96

Note: Amenable causes are from E. Nolte and M. McKee, *Does Healthcare Save Lives*? *Avoidable Mortality Revisited* (London: Nuffield Trust, 2004). Available at http://researchonline.lshtm.ac.uk/15535/1/does-healthcare-save-lives-mar04.pdf and E. Nolte and M. McKee, In Amenable Mortality—Deaths Avoidable Through Health Care—Progress In The US Lags That of Three European Countries, *Health Affairs 31*(9), 2114-2122. Available at https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2011.0851

Table A7. Population Estimates[1] for Massachusetts Community Health Network Areas (CHNA) and Counties: 2017

CHNA	POPULATION[1]
1. Community Health Network of Berkshire County	127,527
2. Upper Valley Health Web (Franklin County)	87,618
3. Partnership for Health in Hampshire County (Northampton)	162,090
4. The Community Health Connection (Springfield)	303,821
5. Community Health Network of Southern Worcester County	123,518
6. Community Partners for Health (Milford)	177,660
7. Community Health Network of Greater Metro West (Framingham)	413,298
8. Common Pathways (Worcester)	326,086
9. Community Health Network of North Central Massachusetts	273,023
10. Greater Lowell Community Health Network	296,372
11. Greater Lawrence Community Health Network	215,795
12. Greater Haverhill Community Health Network	155,525
13. Community Health Network North (Beverly/Gloucester)	117,331
14. North Shore Community Health Network	304,899
15. Northwest Suburban Health Alliance	233,932
16. North Suburban Health Alliance (Medford/Malden/Melrose)	296,788
17. Greater Cambridge/Somerville Community Health Network	294,491
18. West Suburban Health Network (Newton/Waltham)	274,476
19. Alliance for Community Health (Boston/Chelsea/Revere/Winthrop)	864,314
20. Blue Hills Community Health Alliance (Greater Quincy)	398,116
21. Community Health Network of Chicopee, Holyoke, Ludlow, Westfield	164,481
22. Greater Brockton Community Health Network	247,455
23. South Shore Community Health Network (Plymouth)	200,341
24. Greater Attleboro-Taunton Health & Education Response	270,166
25. Partners for Healthier Communities (Fall River)	140,528
26. Greater New Bedford Community Health Network	210,799
27. Cape Cod and Islands Health Network	245,031

COUNTY	POPULATION[1]
Barnstable	216,468
Berkshire	127,527
Bristol	567,596
Dukes	17,332
Essex	793,549
Franklin	71,454
Hampden	474,265
Hampshire	164,295
Middlesex	1,618,520
Nantucket	11,231
Norfolk	708,308
Plymouth	520,977
Suffolk	800,550
Worcester	833,408
STATE	**6,925,478**

1. State, County, and Small Area Population Estimates 2011-2020, version 2017, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

Table A8. Population Estimates[1] for Massachusetts Communities, 2010

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Abington	Plymouth	22	17,721	Concord	Middlesex	15	18,639
Acton	Middlesex	15	23,573	Conway	Franklin	2	1,921
Acushnet	Bristol	26	10,458	Cummington	Hampshire	3	806
Adams	Berkshire	1	8,278	Dalton	Berkshire	1	6,518
Agawam	Hampden	4	28,726	Danvers	Essex	14	28,392
Alford	Berkshire	1	468	Dartmouth	Bristol	26	36,549
Amesbury	Essex	12	16,649	Dedham	Norfolk	18	26,850
Amherst	Hampshire	3	40,819	Deerfield	Franklin	2	5,270
Andover	Essex	11	35,819	Dennis	Barnstable	27	13,348
Aquinnah (Gay Head)	Dukes	27	270	Dighton	Bristol	24	7,756
Arlington	Middlesex	17	45,660	Douglas	Worcester	6	9,289
Ashburnham	Worcester	9	6,257	Dover	Norfolk	18	5,261
Ashby	Middlesex	9	3,414	Dracut	Middlesex	10	32,070
Ashfield	Franklin	2	1,711	Dudley	Worcester	5	12,271
Ashland	Middlesex	7	19,177	Dunstable	Middlesex	10	3,320
Athol	Worcester	2	11,923	Duxbury	Plymouth	23	15,150
Attleboro	Bristol	24	46,024	East Bridgewater	Plymouth	22	14,641
Auburn	Worcester	8	16,443	East Brookfield	Worcester	5	2,230
Avon	Norfolk	22	4,361	East Longmeadow	Hampden	4	16,817
Ayer	Middlesex	9	8,018	Eastham	Barnstable	27	4,663
Barnstable	Barnstable	27	44,969	Easthampton	Hampshire	3	16,201
Barre	Worcester	9	5,538	Easton	Bristol	22	23,660
Becket	Berkshire	1	1,789	Edgartown	Dukes	27	4,105
Bedford	Middlesex	15	14,714	Egremont	Berkshire	1	1,110
Belchertown	Hampshire	3	15,772	Erving	Franklin	2	2,044
Bellingham	Norfolk	6	17,714	Essex	Essex	13	3,695
Belmont	Middlesex	17	27,039	Everett	Middlesex	16	47,908
Berkley	Bristol	24	6,741	Fairhaven	Bristol	26	16,038
Berlin	Worcester	9	3,148	Fall River	Bristol	25	89,511
Bernardston	Franklin	2	2,084	Falmouth	Barnstable	27	31,305
Beverly	Essex	13	41,230	Fitchburg	Worcester	9	41,994
Billerica	Middlesex	10	43,392	Florida	Berkshire	1	778
Blackstone	Worcester	6	9,048	Foxborough	Norfolk	7	17,965
Blandford	Hampden	4	1,219	Framingham	Middlesex	7	74,112
Bolton	Worcester	9	5,036	Franklin	Norfolk	6	33,663
Boston	Suffolk	19	684,002	Freetown	Bristol	26	9,045
Bourne	Barnstable	27	20,765	Gardner	Worcester	9	20,042
Boxborough	Middlesex	15	5,103	Georgetown	Essex	12	8,850
Boxford	Essex	12	7,767	Gill	Franklin	2	1,640
Boylston	Worcester	8	4,469	Gloucester	Essex	13	28,766
Braintree	Norfolk	20	39,019	Goshen	Hampshire	3	1,134
Brewster	Barnstable	27	9,897	Gosnold	Dukes	27	50
Bridgewater	Plymouth	22	28,291	Grafton	Worcester	8	19,701
Brimfield	Hampden	5	3,715	Granby	Hampshire	3	6,152
Brockton	Plymouth	22	97,490	Granville	Hampden	4	1,561
Brookfield	Worcester	5	3,621	Great Barrington	Berkshire	1	6,785
Brookline	Norfolk	19	63,764	Greenfield	Franklin	2	17,307
Buckland	Franklin	2	1,855	Groton	Middlesex	9	11,564
Burlington	Middlesex	15	27,298	Groveland	Essex	12	6,794
Cambridge	Middlesex	17	112,039	Hadley	Hampshire	3	5,690
Canton	Norfolk	20	22,896	Halifax	Plymouth	23	7,635
Carlisle	Middlesex	15	4,792	Hamilton	Essex	13	7,533
Carver	Plymouth	23	12,111	Hampden	Hampden	4	4,978
Charlemont	Franklin	2	1,198	Hancock	Berkshire	1	657
Charlton	Worcester	5	13,944	Hanover	Plymouth	23	14,286
Chatham	Barnstable	27	5,878	Hanson	Plymouth	23	10,656
Chelmsford	Middlesex	10	35,829	Hardwick	Worcester	9	3,265
Chelsea	Suffolk	19	37,605	Harvard	Worcester	9	6,880
Cheshire	Berkshire	1	3,000	Harwich	Barnstable	27	12,489
Chester	Hampden	21	1,356	Hatfield	Hampshire	3	3,247
Chesterfield	Hampshire	3	1,225	Haverhill	Essex	12	65,561
Chicopee	Hampden	21	57,077	Hawley	Franklin	2	291
Chilmark	Dukes	27	787	Heath	Franklin	2	614
Clarksburg	Berkshire	1	1,678	Hingham	Plymouth	20	23,621
Clinton	Worcester	9	13,992	Hinsdale	Berkshire	1	2,109
Cohasset	Norfolk	20	7,424	Holbrook	Norfolk	22	11,213
Colrain	Franklin	2	1,608	Holden	Worcester	8	18,675

Table A8 (continued). Population Estimates[1] for Massachusetts Communities, 2010

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Holland	Hampden	5	2,554	New Marlborough	Berkshire	1	1,520
Holliston	Middlesex	7	13,798	New Salem	Franklin	2	985
Holyoke	Hampden	21	41,118	Newbury	Essex	12	6,669
Hopedale	Worcester	6	5,705	Newburyport	Essex	12	17,788
Hopkinton	Middlesex	7	16,189	Newton	Middlesex	18	91,409
Hubbardston	Worcester	9	4,626	Norfolk	Norfolk	7	12,189
Hudson	Middlesex	7	20,777	North Adams	Berkshire	1	13,079
Hull	Plymouth	20	9,959	North Andover	Essex	11	30,090
Huntington	Hampshire	21	2,205	North Attleboro	Bristol	24	30,078
Ipswich	Essex	13	13,441	North Brookfield	Worcester	5	4,647
Kingston	Plymouth	23	13,457	North Reading	Middlesex	16	16,364
Lakeville	Plymouth	24	11,226	Northampton	Hampshire	3	29,275
Lancaster	Worcester	9	8,503	Northborough	Worcester	7	13,744
Lanesborough	Berkshire	1	3,036	Northbridge	Worcester	6	17,725
Lawrence	Essex	11	86,766	Northfield	Franklin	2	2,966
Lee	Berkshire	1	5,851	Norton	Bristol	24	19,797
Leicester	Worcester	8	11,233	Norwell	Plymouth	20	10,694
Lenox	Berkshire	1	4,873	Norwood	Norfolk	20	29,948
Leominster	Worcester	9	40,683	Oak Bluffs	Dukes	27	5,104
Leverett	Franklin	2	1,994	Oakham	Worcester	9	2,085
Lexington	Middlesex	15	33,804	Orange	Franklin	2	8,056
Leyden	Franklin	2	641	Orleans	Barnstable	27	5,671
Lincoln	Middlesex	15	8,571	Otis	Berkshire	1	1,821
Littleton	Middlesex	15	9,646	Oxford	Worcester	5	13,778
Longmeadow	Hampden	4	15,604	Palmer	Hampden	4	11,970
Lowell	Middlesex	10	116,037	Paxton	Worcester	8	4,929
Ludlow	Hampden	21	20,954	Peabody	Essex	14	55,445
Lunenburg	Worcester	9	10,371	Pelham	Hampshire	3	1,256
Lynn	Essex	14	99,940	Pembroke	Plymouth	23	18,616
Lynnfield	Essex	14	11,666	Pepperell	Middlesex	9	12,232
Malden	Middlesex	16	66,900	Peru	Berkshire	1	840
Manchester	Essex	13	4,973	Petersham	Worcester	2	1,262
Mansfield	Bristol	24	23,612	Phillipston	Worcester	2	1,708
Marblehead	Essex	14	19,348	Pittsfield	Berkshire	1	44,104
Marion	Plymouth	26	4,677	Plainfield	Hampshire	3	634
Marlborough	Middlesex	7	43,056	Plainville	Norfolk	7	9,008
Marshfield	Plymouth	23	25,857	Plymouth	Plymouth	23	61,590
Mashpee	Barnstable	27	15,181	Plympton	Plymouth	23	2,968
Mattapoisett	Plymouth	26	5,824	Princeton	Worcester	9	3,285
Maynard	Middlesex	7	10,419	Provincetown	Barnstable	27	2,667
Medfield	Norfolk	7	11,502	Quincy	Norfolk	20	100,011
Medford	Middlesex	16	60,466	Randolph	Norfolk	20	33,759
Medway	Norfolk	6	13,055	Raynham	Bristol	24	14,746
Melrose	Middlesex	16	28,782	Reading	Middlesex	16	27,245
Mendon	Worcester	6	5,802	Rehoboth	Bristol	24	12,515
Merrimac	Essex	12	6,399	Revere	Suffolk	19	60,201
Methuen	Essex	11	52,945	Richmond	Berkshire	1	1,344
Middleborough	Plymouth	24	26,497	Rochester	Plymouth	26	5,595
Middlefield	Hampshire	3	463	Rockland	Plymouth	23	18,016
Middleton	Essex	11	10,175	Rockport	Essex	13	6,620
Milford	Worcester	6	29,136	Rowe	Franklin	2	346
Millbury	Worcester	8	13,600	Rowley	Essex	12	6,145
Millis	Norfolk	7	7,905	Royalston	Worcester	2	1,273
Millville	Worcester	6	3,500	Russell	Hampden	4	1,875
Milton	Norfolk	20	28,426	Rutland	Worcester	9	8,881
Monroe	Franklin	2	101	Salem	Essex	14	44,782
Monson	Hampden	4	8,476	Salisbury	Essex	12	8,797
Montague	Franklin	2	8,503	Sandisfield	Berkshire	1	930
Monterey	Berkshire	1	935	Sandwich	Barnstable	27	20,939
Montgomery	Hampden	4	885	Saugus	Essex	14	28,287
Mt. Washington	Berkshire	1	140	Savoy	Berkshire	1	639
Nahant	Essex	14	3,297	Scituate	Plymouth	20	18,152
Nantucket	Nantucket	27	11,231	Seekonk	Bristol	24	13,987
Natick	Middlesex	7	35,742	Sharon	Norfolk	20	18,235
Needham	Norfolk	18	29,324	Sheffield	Berkshire	1	3,092
New Ashford	Berkshire	1	186	Shelburne	Franklin	2	1,845
New Bedford	Bristol	26	98,878	Sherborn	Middlesex	7	3,887
New Braintree	Worcester	9	1,054	Shirley	Middlesex	9	8,281

Table A8 (continued). Population Estimates[1] for Massachusetts Communities, 2010

TOWN NAME	COUNTY	CHNA	POPULATION	TOWN NAME	COUNTY	CHNA	POPULATION
Shrewsbury	Worcester	8	38,999	Warwick	Franklin	2	753
Shutesbury	Franklin	2	1,740	Washington	Berkshire	1	466
Somerset	Bristol	25	18,494	Watertown	Middlesex	17	33,081
Somerville	Middlesex	17	76,672	Wayland	Middlesex	7	13,283
South Hadley	Hampshire	3	18,087	Webster	Worcester	5	17,160
Southampton	Hampshire	3	5,977	Wellesley	Norfolk	18	29,565
Southborough	Worcester	7	9,729	Wellfleet	Barnstable	27	2,755
Southbridge	Worcester	5	16,780	Wendell	Franklin	2	747
Southwick	Hampden	4	9,787	Wenham	Essex	13	5,191
Spencer	Worcester	5	11,548	West Boylston	Worcester	8	7,827
Springfield	Hampden	4	157,491	West Bridgewater	Plymouth	22	7,206
Sterling	Worcester	9	7,869	West Brookfield	Worcester	5	3,702
Stockbridge	Berkshire	1	1,765	West Newbury	Essex	12	4,106
Stoneham	Middlesex	16	22,277	West Springfield	Hampden	4	29,452
Stoughton	Norfolk	22	27,567	West Stockbridge	Berkshire	1	1,207
Stow	Middlesex	7	7,149	West Tisbury	Dukes	27	2,873
Sturbridge	Worcester	5	10,285	Westborough	Worcester	7	18,752
Sudbury	Middlesex	7	17,943	Westfield	Hampden	21	41,770
Sunderland	Franklin	2	3,761	Westford	Middlesex	10	23,084
Sutton	Worcester	6	8,992	Westhampton	Hampshire	3	1,687
Swampscott	Essex	14	13,741	Westminster	Worcester	9	7,330
Swansea	Bristol	25	15,985	Weston	Middlesex	18	11,142
Taunton	Bristol	24	57,187	Westport	Bristol	25	16,537
Templeton	Worcester	9	8,821	Westwood	Norfolk	18	14,739
Tewksbury	Middlesex	10	30,696	Weymouth	Norfolk	20	55,972
Tisbury	Dukes	27	4,143	Whately	Franklin	2	1,469
Tolland	Hampden	4	432	Whitman	Plymouth	22	15,304
Topsfield	Essex	13	5,883	Wilbraham	Hampden	4	14,548
Townsend	Middlesex	9	9,158	Williamsburg	Hampshire	3	2,468
Truro	Barnstable	27	1,977	Williamstown	Berkshire	1	7,412
Tyngsborough	Middlesex	10	11,943	Wilmington	Middlesex	15	24,221
Tyringham	Berkshire	1	259	Winchendon	Worcester	9	10,695
Upton	Worcester	6	8,856	Winchester	Middlesex	15	22,289
Uxbridge	Worcester	6	15,175	Windsor	Berkshire	1	859
Wakefield	Middlesex	16	26,845	Winthrop	Suffolk	19	18,743
Wales	Hampden	5	1,900	Woburn	Middlesex	15	41,282
Walpole	Norfolk	7	25,720	Worcester	Worcester	8	190,211
Waltham	Middlesex	18	66,187	Worthington	Hampshire	3	1,075
Ware	Hampshire	3	10,121	Wrentham	Norfolk	7	11,252
Wareham	Plymouth	26	23,736	Yarmouth	Barnstable	27	23,964
Warren	Worcester	5	5,385				

1. State, County, and Small Area Population Estimates 2011-2020, version 2017, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

Table A9. 2017 Massachusetts Population Estimates[1] By Age Group, Gender, Race and Hispanic Ethnicity (mutually exclusive)

AGE	GENDER	TOTAL	WHITE Non-Hispanic[1]	BLACK Non-Hispanic[1]	ASIAN Non-Hispanic[1]	HISPANIC[1]
Under 1	Male	36,895	21,367	3,200	2,670	7,830
	Female	35,237	20,568	3,061	2,463	7,551
	Total	72,132	41,936	6,261	5,133	15,381
1 TO 4	Male	152,000	90,376	13,318	10,827	31,157
	Female	146,030	86,271	12,772	10,431	30,455
	Total	298,030	176,646	26,090	21,257	61,612
5 TO 14	Male	395,083	243,259	33,786	26,443	69,613
	Female	378,938	231,971	31,873	25,816	68,100
	Total	774,021	475,230	65,658	52,259	137,713
15 TO 24	Male	491,212	323,711	40,513	35,964	77,781
	Female	488,477	322,352	39,855	39,972	72,730
	Total	979,689	646,063	80,368	75,936	150,511
25 TO 34	Male	486,948	324,486	41,528	45,685	73,962
	Female	482,649	322,347	40,441	50,057	68,415
	Total	969,597	646,833	81,969	95,741	142,377
35 TO 44	Male	407,830	274,423	32,018	36,584	57,033
	Female	423,215	282,348	33,339	40,465	58,354
	Total	831,045	556,770	65,357	77,049	115,387
45 TO 54	Male	461,331	351,406	30,626	28,602	42,847
	Female	489,058	368,654	33,893	31,103	47,050
	Total	950,389	720,060	64,520	59,705	89,897
55 TO 64	Male	449,976	373,724	25,207	18,846	26,656
	Female	486,531	398,742	28,599	21,682	31,422
	Total	936,507	772,466	53,806	40,527	58,078
65 TO 74	Male	298,083	257,447	13,062	11,160	13,386
	Female	345,850	295,146	16,598	13,312	17,590
	Total	643,932	552,594	29,659	24,472	30,977
75 TO 84	Male	130,379	114,005	5,104	5,328	4,889
	Female	177,822	153,936	8,533	6,617	7,604
	Total	308,202	267,941	13,636	11,946	12,493
85 +	Male	53,719	48,265	1,719	1,743	1,595
	Female	108,216	98,359	3753.36	2,459	3,023
	Total	161,935	146,623	5,472	4,202	4,618
ALL AGES	**Male**	**3,363,455**	**2,422,469**	**240,080**	**223,852**	**406,750**
	Female	**3,562,023**	**2,580,694**	**252,717**	**244,375**	**412,293**
	Total	**6,925,479**	**5,003,162**	**492,797**	**468,227**	**819,043**

1. State, County, and Small Area Population Estimates 2011-2020, version 2017, Massachusetts Department of Public Health, Bureau of Environmental Health. Population estimates used for years following the decennial census were developed by the University of Massachusetts Donahue Institute (UMDI) in partnership with the Massachusetts Department of Public Health, Bureau of Environmental Health. Detailed population estimates at fine levels of geography are prone to estimation error. Estimated error was best described by age and population size and was used to adjust final population numbers, however a margin of error exists for all estimates.

Massachusetts Death Certificate: 2017

Commonwealth of Massachusetts
Registry of Vital Records and Statistics
CERTIFICATE OF DEATH

State File #
Registered #

Form R-301 08012015

DECEDENT

Place of Death
Date of Death | *Age* | *Sex*

Current Name
Surname at Birth or Adoption | *SSN*
AKA

Date of Birth | *Birthplace*

Residence

Race | *Education*

Marital Status | *Occupation/Industry*

Last Spouse – Last, First, Middle (Surname at Birth or Adoption) | *Decedent: U.S. Veteran (Most Recent)*

Mother/Parent Name – Last, First Middle (Surname at Birth or Adoption) | *Birthplace*

Father/Parent Name – Last, First Middle (Surname at Birth or Adoption) | *Birthplace*

MEDICAL CERTIFIER

Part I. Cause of Death – Sequentially list immediate cause then antecedent causes then underlying cause | *Interval between onset and death*

a. Immediate Cause (Final condition resulting in death)

b. Due to or as a consequence of:.

c. Due to or as a consequence of:

d. Due to or as a consequence of:

Part II. Other significant conditions contributing to death but not resulting in underlying cause

Manner of Death:

Time of Death:

Result of Injury:

Certifier | *Lic #*

Addr.

DISPOSITION

Funeral Licensee/ Designee | *Lic #*

Facility/Addr.

Immediate Disposition

Date of Immediate Disposition

Place/Address

Date of Record

Date of Amendment

If U.S. war veteran, specify war/conflict(s) *Branch of military (most recent)* *Rank/organization/outfit(most recent)* *Date entered(most recent)* *Date Discharged (most recent)* *Service Number(most recent)*			
Place of Death Type	*Date of Pronouncement* *Time of Pronouncement*		
RN/NP/PA Pronouncement? *Name of RN/NP/PA Pronouncing Death* *Lic #* *RN/NP/PA Employing Agency or Institution* *Name of Physician or Medical Examiner notified*			
Was M.E. Notified?	*Provider in charge of patient's care, if not certifier*		
Autopsy Performed?	*Findings available for Cause?*	*Tobacco contribute to death?*	*Pregnancy Status, if female*
Date of Injury	*Time of Injury*	*Injury at Work?*	*If Transportation Injury, specify:*
Place of Injury		*Location/Address of Injury:*	
Describe How Injury Occurred			
Expanded Race: *Ethnicity:*			
Informant Name *Relationship* *Addr.*			
Date Disposition Permit Issued:		*Board of Health Agent*	
State Tracking No.		*Local Permit No.*	

Circumstance for Referral to the Office of the Chief Medical Examiner (OCME)

http://www.mass.gov/legis/laws/mgl/38-3.htm

CHAPTER 38. MEDICAL EXAMINERS AND INQUESTS

Chapter 38: Section 3. Duty to report deaths; failure to report

Section 3. It shall be the duty of any person having knowledge of a death which occurs under the circumstances enumerated in this paragraph immediately to notify the office of the chief medical examiner, or the medical examiner designated to the location where the death has occurred, of the known facts concerning the time, place, manner, circumstances and cause of such death:

(1) death where criminal violence appears to have taken place, regardless of the time interval between the incident and death, and regardless of whether such violence appears to have been the immediate cause of death, or a contributory factor thereto;

(2) death by accident or unintentional injury, regardless of time interval between the incident and death, and regardless of whether such injury appears to have been the immediate cause of death, or a contributory factor thereto;

(3) suicide, regardless of the time interval between the incident and death;

(4) death under suspicious or unusual circumstances;

(5) death following an unlawful abortion;

(6) death related to occupational illness or injury;

(7) death in custody, in any jail or correctional facility, or in any mental health or mental retardation institution;

(8) death where suspicion of abuse of a child, family or household member, elder person or disabled person exists;

(9) death due to poison or acute or chronic use of drugs or alcohol;

(10) skeletal remains;

(11) death associated with diagnostic or therapeutic procedures;

(12) sudden death when the decedent was in apparent good health;

(13) death within twenty-four hours of admission to a hospital or nursing home;

(14) death in any public or private conveyance;

(15) fetal death, as defined by section two hundred and two of chapter one hundred and eleven, where the period of gestation has been twenty weeks or more, or where fetal weight is three hundred and fifty grams or more;

(16) death of children under the age of 18 years from any cause;

(17) any person found dead;

(18) death in any emergency treatment facility, medical walk-in center, day care center, or under foster care; or

(19) deaths occurring under such other circumstances as the chief medical examiner shall prescribe in regulations promulgated pursuant to the provisions of chapter thirty A.

A physician, police officer, hospital administrator, licensed nurse, department of social services social worker, or licensed funeral director, within the commonwealth, who, having knowledge of such an unreported death, fails to notify the office of the chief medical examiner of such death shall be punished by a fine of not more than five hundred dollars. Such failure shall also be reported to the appropriate board of registration, where applicable.

Massachusetts Deaths: 2017 Evaluation Form

TO OUR READERS:
In an attempt to better serve our users, we are enclosing this evaluation form. Please take the time to complete this questionnaire and return it to the address at the bottom of the page. Thank you.

What tables and charts do you find most useful?
What tables and charts do you find least useful?
Are there other tables and charts that you would like added to this publication? If yes, please describe them in detail.
Do you have other comments or suggestions?
Name (optional): **Address:** **(For those who received the publication by mail)** Is the mailing label address correct? If not, please correct the address. Thank you.

Please return your comments to:

Massachusetts Department of Public Health
Registry of Vital Records and Statistics
150 Mt. Vernon Street 1st Floor
Dorchester, MA 02125